



The user tool

USER MANUAL



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Introduction

Objective of this document

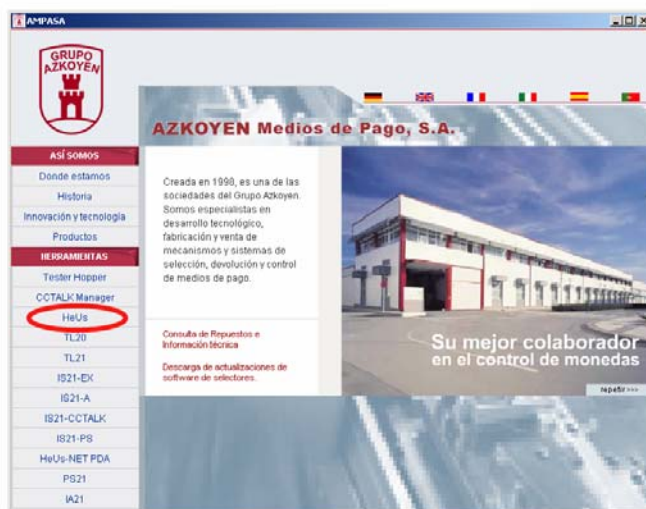
This document describes the use of the PC application called User Tool.

First it describes the uses and functions of the User Tool, such as its configuration. Later it defines what PGA protocol is, which devices have implemented this protocol and the advantages these devices have over previous devices. Lastly the User Tool will be described in detail, its different functions, how to connect it and interact with the different devices.

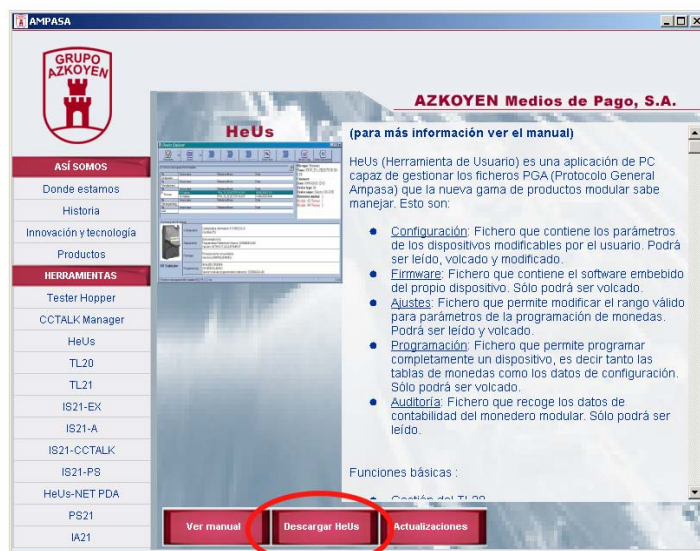
HeUs Installation

In order to install the software of PC denominated User Tool (HeUs) will be necessary to follow the following instructions:

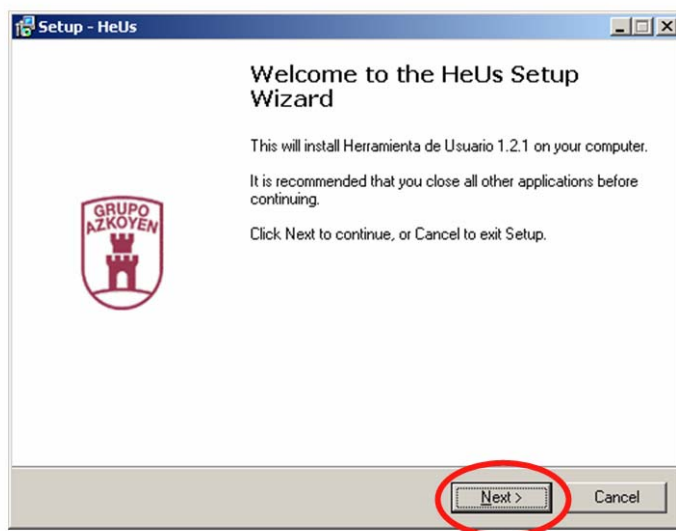
- Insert the Tools CD distributed by Azkoyen in your CD-ROM drive and click **HeUs** label.



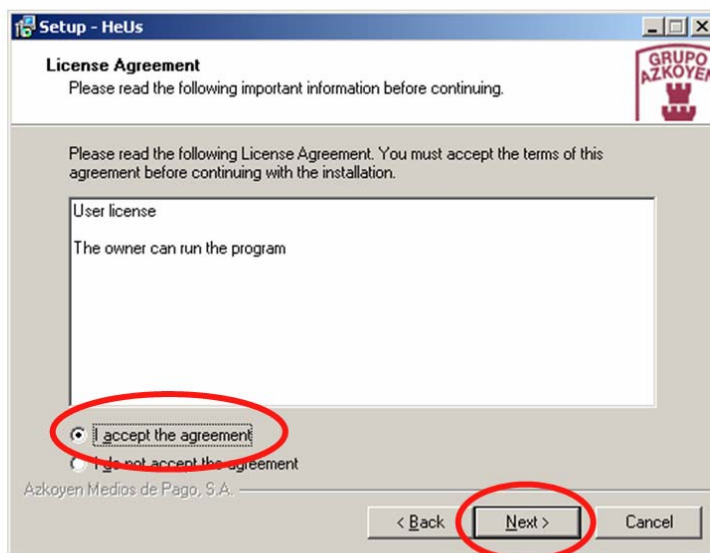
- Click **Download HeUs** button to begin installation process.



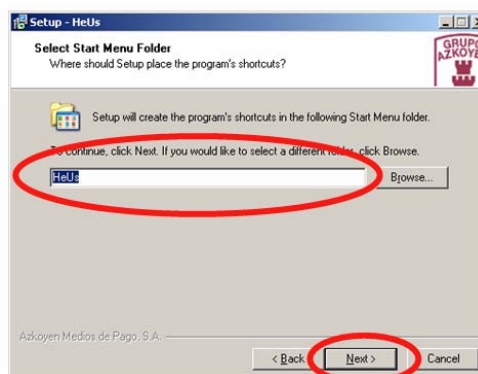
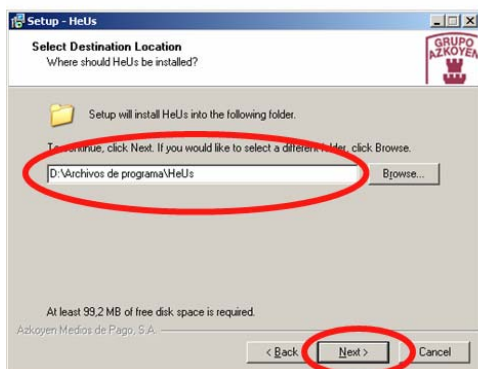
- Click **Next** button to continue and follow the instructions.



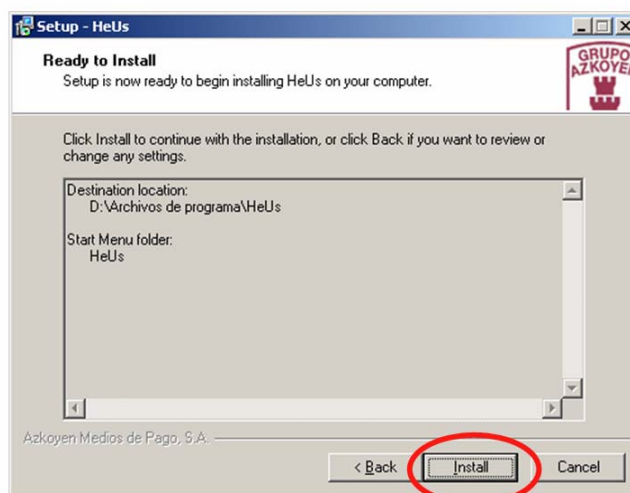
- Select **I accept the agreement** option and click **Next** button.



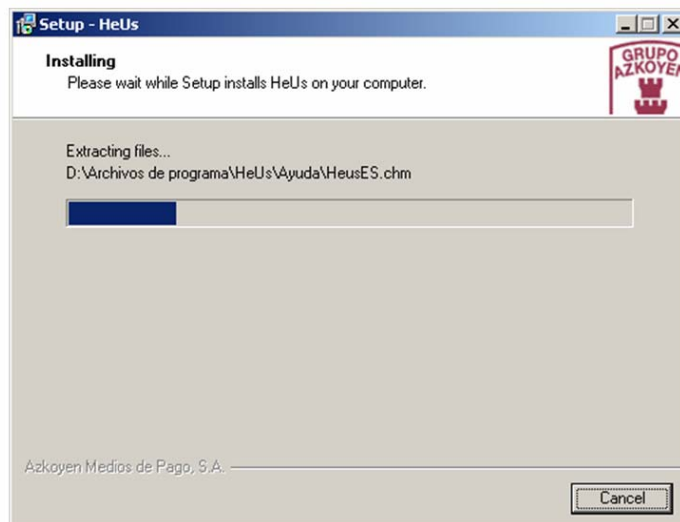
- Enter the file path and start menu folder in the **text-box** or browse to it by clicking the **Browse** button. The letter “D” represents the letter of the CD-ROM drive. Your CD-ROM drive may be a different drive letter. Once the file path has been entered in the box, click **Next** to proceed.



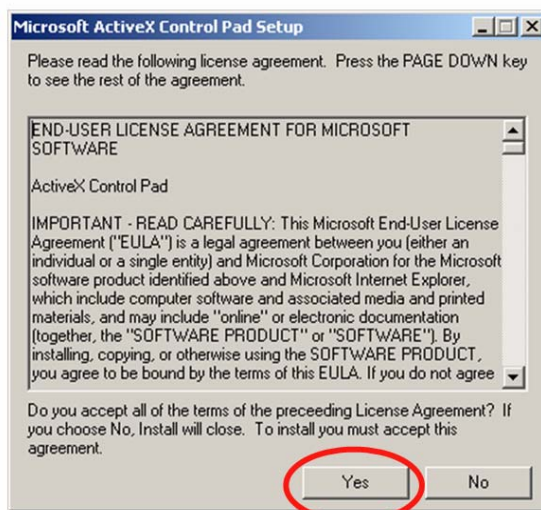
- Once setup is ready, click **Install** button to continue.



- The following screen will be displayed as windows copies the required driver files.



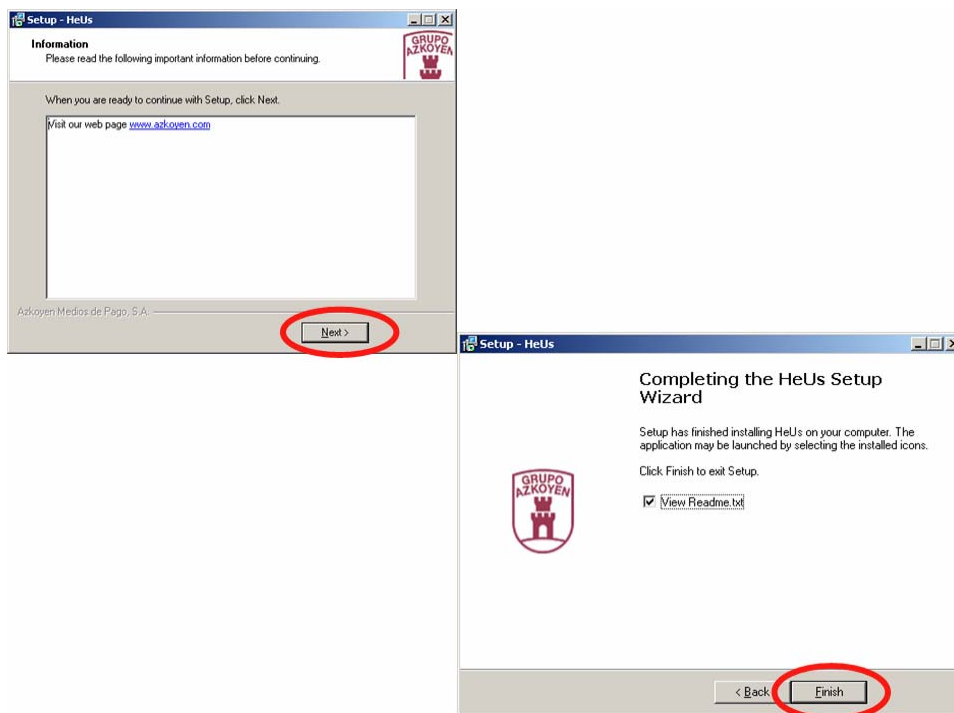
- After the installation of the basic archives of HeUs, it will install **Microsoft ActiveX Control Pad Setup**. Click **Yes** button to continue.





USER MANUAL OF USER TOOL

- When setup finishes the anterior process, it will install **Microsoft .NET Framework v1.1**. Click **Yes** button to continue.
- Windows should then display a message indicating that the installation was successful. Click **Finish** button to complete the installation.



- Setup will create the next directory structure:

Ayuda	
Catalogo	
datafiles	
DriverPS21	
etc	
HistTL21	
Idiomas	
ProgSel	
HeUs.exe	3.208 KB
unins000.exe	76 KB
unins000.dat	41 KB
Readme.txt	1 KB
EditCfgAPI.dll	128 KB
LogClientObject.dll	36 KB
TL21Lib.dll	188 KB
HeUs.ini	1 KB

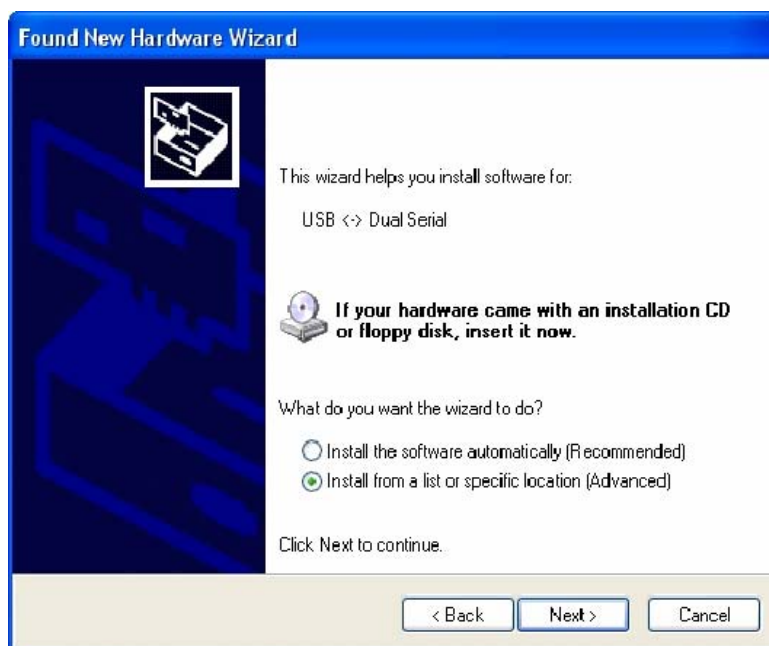
Installing PS21 drivers

To install drivers for an PS21 device under Windows 98, Windows 2000, Windows XP, follow the instructions below:

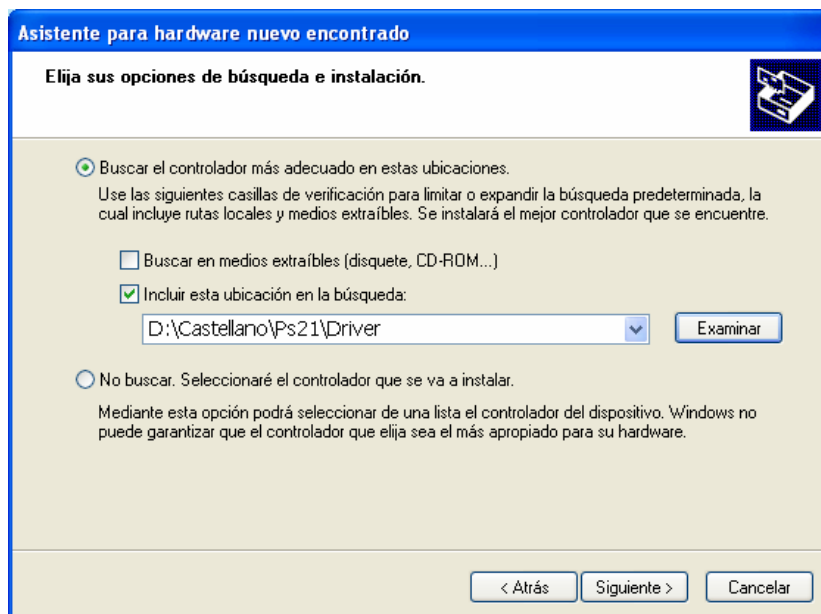
- Insert the Tools CD distributed by Azkoyen in your CD-ROM drive.
- If you are running Windows XP or Windows XP SP 1, temporarily disconnect your PC from the Internet. This can be done by either removing the network cable from your PC or by disabling your network card by going to the "Control Panel\Network and Dial-Up Connections", right-clicking on the appropriate connection and selecting "Disable" from the menu. The connection can be re-enabled after the installation is complete. This is not necessary under Windows XP SP 2 if configured to ask before connecting to Windows Update. Windows XP SP 2 can have the settings for Windows Update changed through "Control Panel\System" then select the "Hardware" tab and click "Windows Update"
- Connect the device to a spare USB port on your PC. This will launch the Windows Found New Hardware Wizard. If there is no available Internet connection or Windows XP SP 2 is configured to ask before connecting to Windows Update, the screen below is shown. Select "No, not this time" from the options available and then click "Next" to proceed with the installation. If there is an available Internet connection, Windows XP will silently connect to the Windows Update website and install any suitable driver it finds for the device in preference to the driver manually selected.



- Select "Install from a list or specific location (Advanced)" as shown below and then Click "Next".



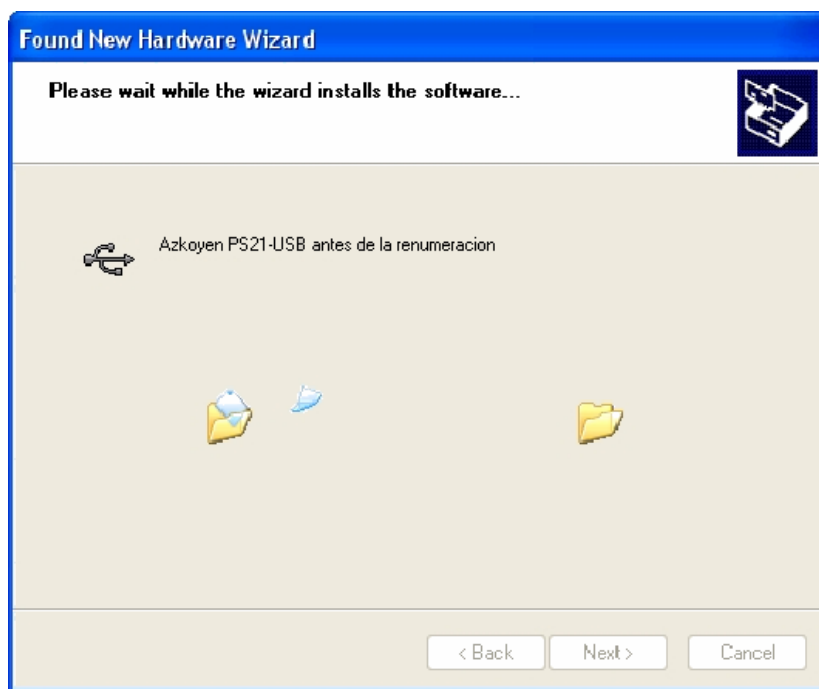
- Select "Search for the best driver in these locations" and enter the file path in the combo-box("D:\English\PS21\Drivers" in the example below) or browse to it by clicking the browse button. The letter "D" represents the letter of the CD-ROM drive. Your CD-ROM drive may be a different drive letter. Once the file path has been entered in the box, click next to proceed.



- If Windows XP is configured to warn when unsigned (non-WHQL certified) drivers are about to be installed, the following screen will be displayed. Click on "Continue Anyway" to continue with the installation. If Windows XP is configured to ignore file signature warnings, no message will appear.



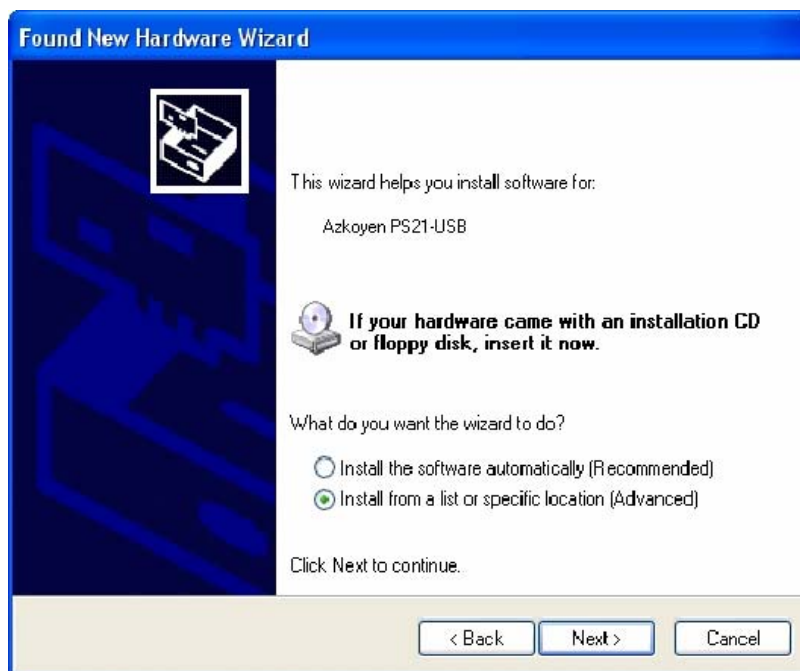
- The following screen will be displayed as Windows copies the required driver files.



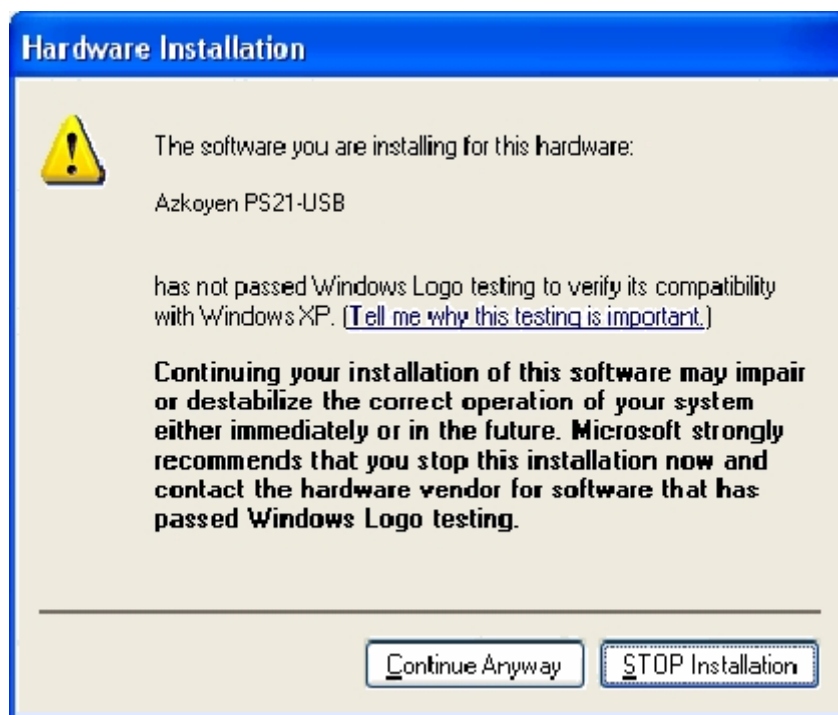
- Windows should then display a message indicating that the previous installation was successful. Click "Finish" to continue the installation.



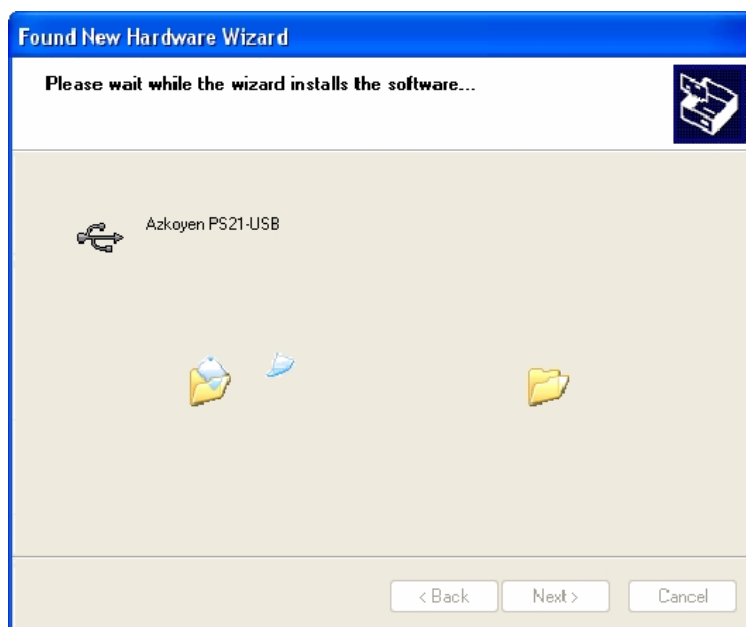
- Select "Install from a list or specific location (Advanced)" as shown below and then "Next".



- Select "Search for the best driver in these locations" and enter the file path in the combo-box ("D:\English\PS21\Drivers" in the example below) or browse to it by clicking the browse button. The letter "D" represents the letter of the CD-ROM drive.
- If Windows XP is configured to warn when unsigned (non-WHQL certified) drivers are about to be installed, the following screen will be displayed. Click on "Continue Anyway" to continue with the installation. If Windows XP is configured to ignore file signature warnings, no message will appear.



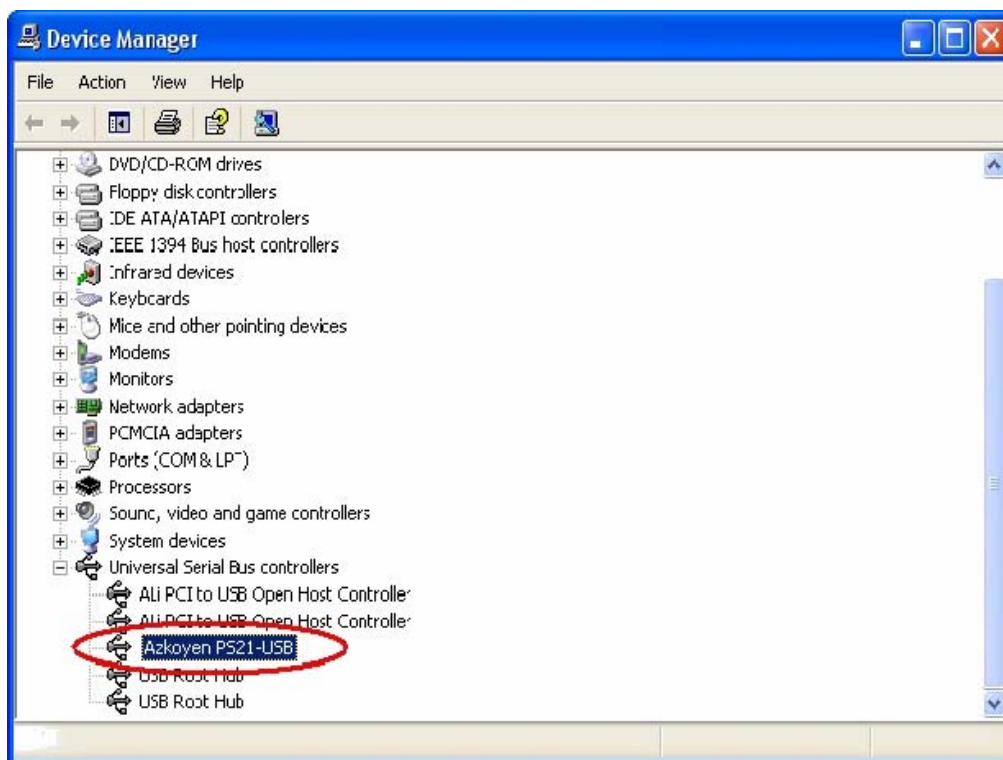
- The following screen will be displayed as Windows copies the required driver files.



- Windows should then display a message indicating that the installation was successful. Click "Finish" to complete the installation. The device is now ready for use.



- Open the Device Manager (located in "Control Panel\System" then select the "Hardware" tab and click "Device Manager") and select "View > Devices by Type". The device appears as a Azkoyen PS21-USB Device connected to a USB port.

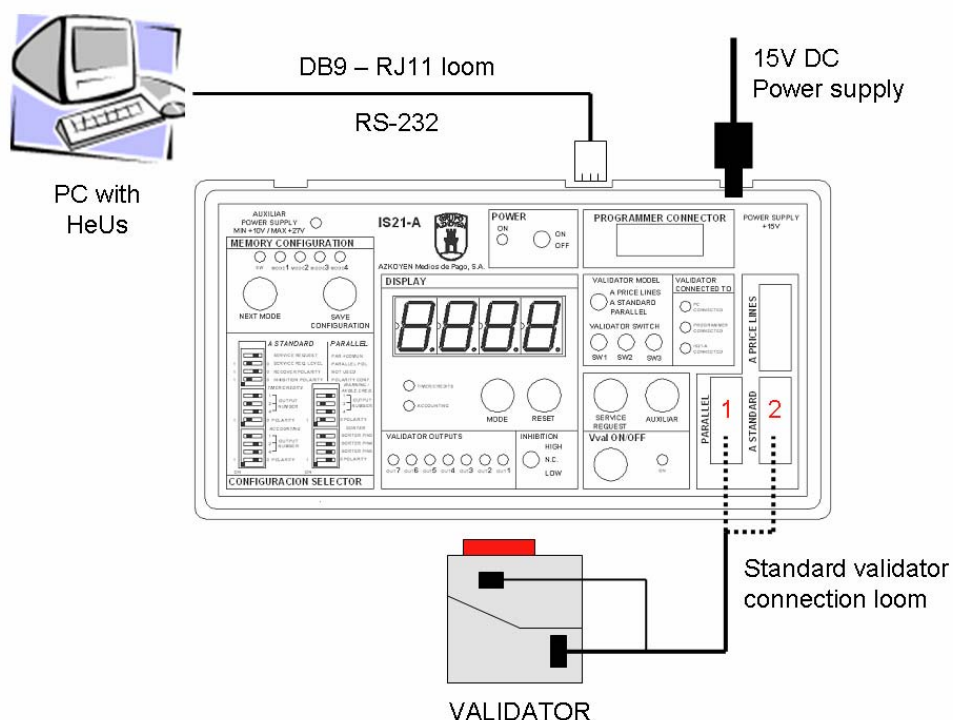


Switch on devices

Before connecting the interface User Tool with any device, these devices must have already been powered.

Depending on the product type, it will be necessary to connect it to different interfaces.

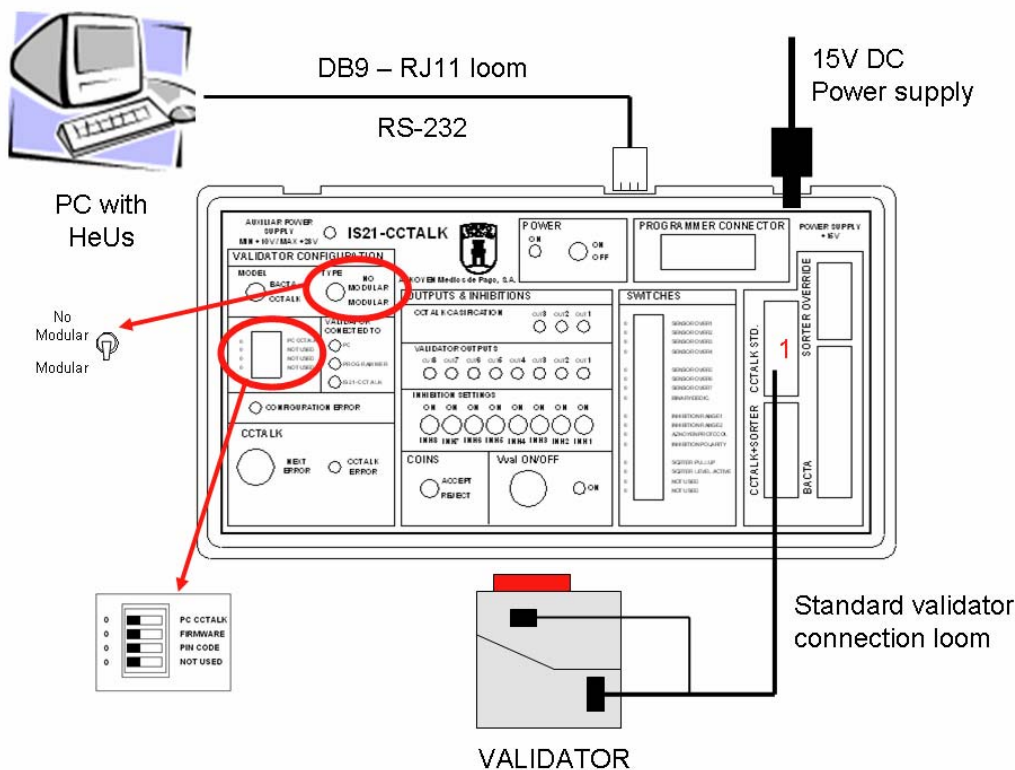
IS21 – A Interface:



	1	2
	Pin 1: VCC Pin 2: GND	Pin 1: GND Pin 2: VCC
VALIDATOR MODEL	X6 AX XTP	XV A6 AC6

Please, refer to the IS21-A interface user manual for further details.

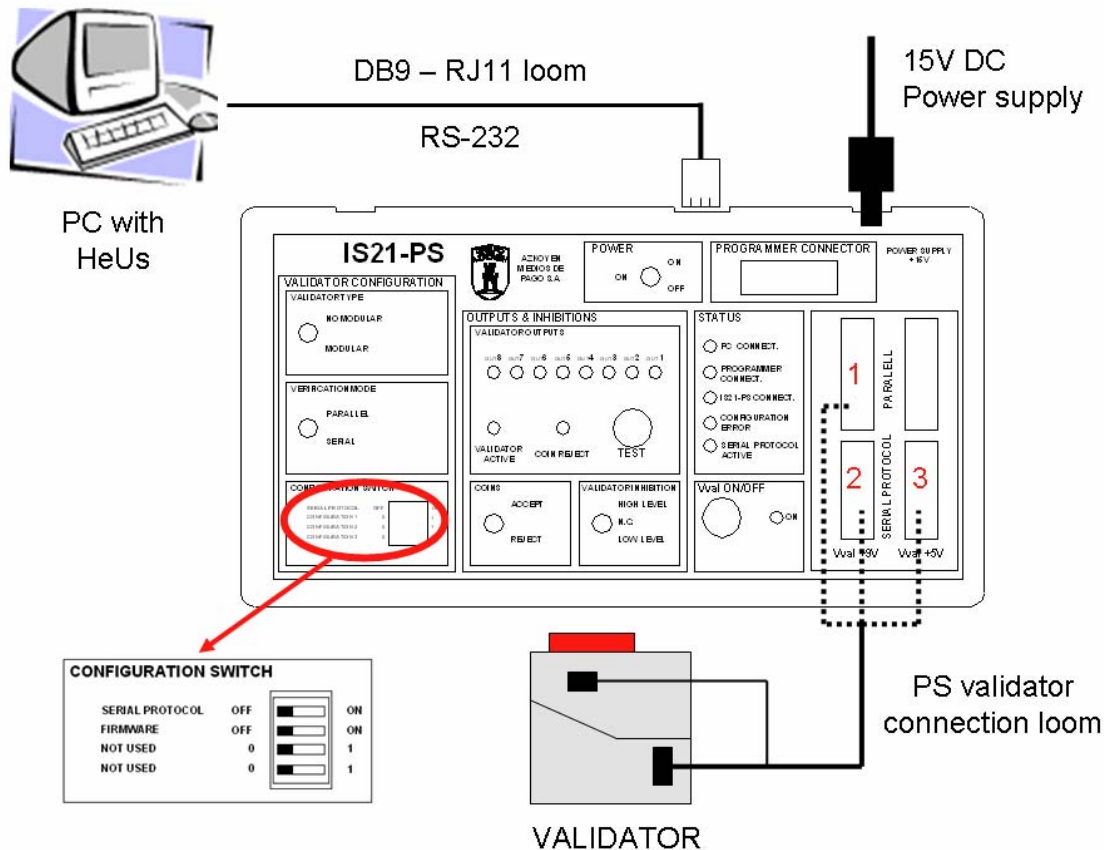
IS21 – CCTALK Interface:



VALIDATOR MODEL	1 Pin 1: DATA Pin 7: VCC Pin 8: GND
	A6CCTALK AC6CCTALK X6CCTALK Z6CCTALK C6CCTALK

Please, refer to the IS21-CCTALK interface user manual for further details.

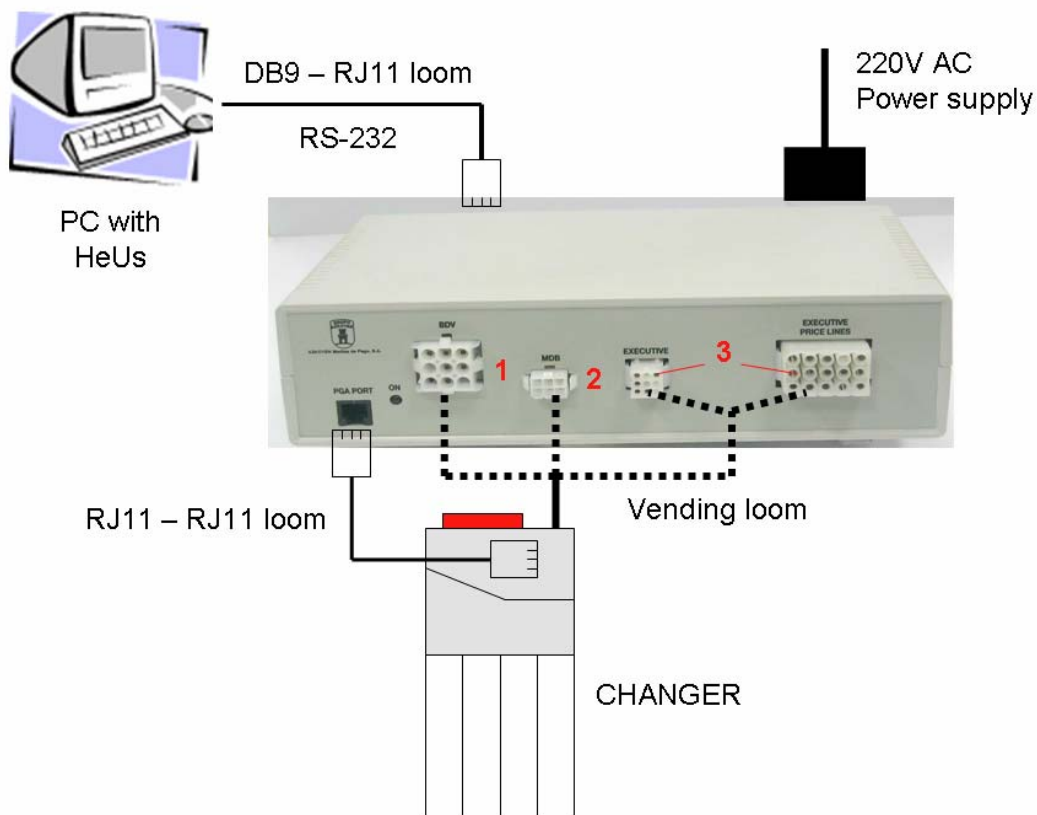
IS21 – PS Interface:



	1	2	3
	9V	9V	5V
VALIDATOR MODEL	X8 X8DUAL B8 X8B	X8PS A8PS	P8PS

Please, refer to the IS21-PS interface user manual for further details.

IS21-EX Interface:



	1	2	3
	BDV	MDB	EXE
COIN CHANGER MODEL	EXACTOR	EXACTOR PRECISION	EXACTOR PRECISION BIANCHI

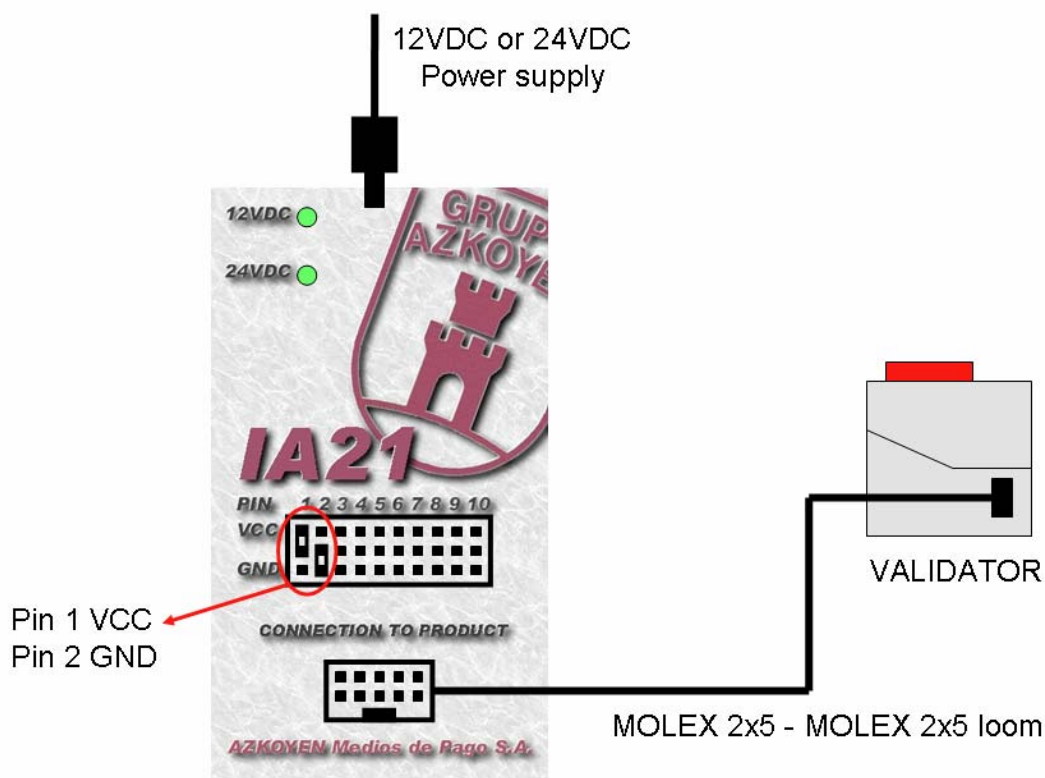
Please, refer to the User Tool (HeUs) user manual for further details.

IA21 Interface:

IA21 tool is used to power devices to 12 Volts or 24 Volts (Vcc). Its JACK connector must be:

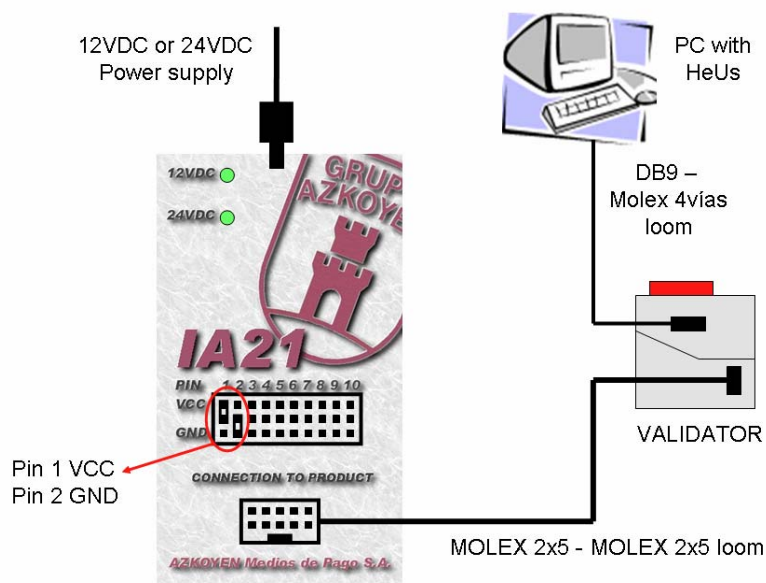
- Diameter of 5,5mm.
- Center Pin (VCC) of 2,5mm
- External GND.

Before connecting a product, consult its technical characteristics, insert the jumper in the VCC pin and GND pin, and connect the suitable power supply (12 or 24 VDC).

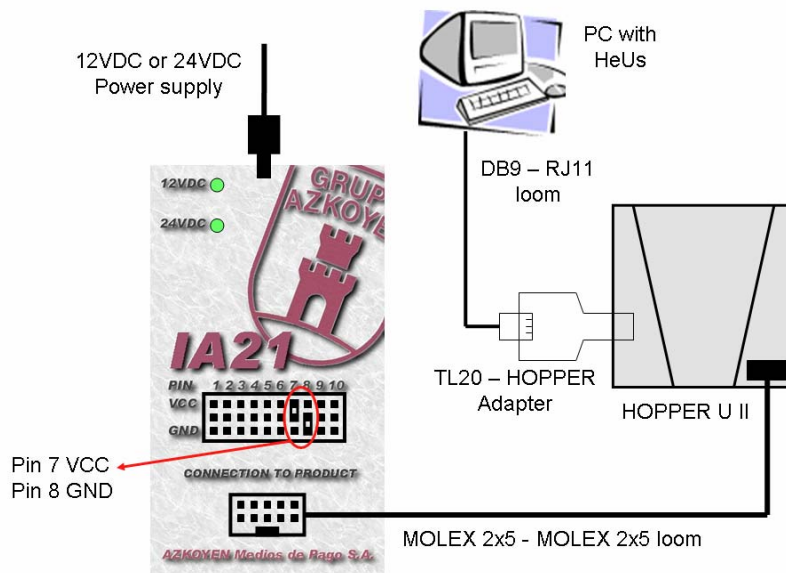


We will connect the product's serial port directly to the PC using a communication cable.

If a **Validator** is connected:

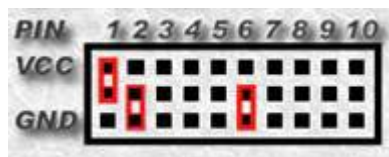


If a **Hopper U II** is connected:



In the following paragraph, it's described how to place the jumpers for different products. Before connecting a device, consult its technical characteristics.

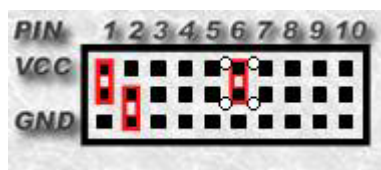
- *X8, X8DUAL, B8, X8B, X8PS, A8PS y P8PS validators are not supported.*
- *X6 y AX validators:*



Pin1: VCC

Pin2 y Pin6: GND

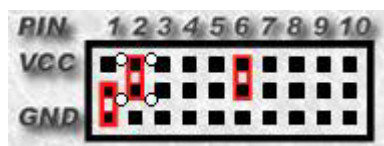
- *XTP validator:*



Pin1 y Pin6: VCC

Pin2: GND

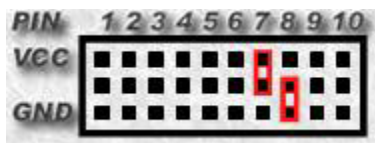
- *XV, A6 y AC6 validators:*



Pin2 y Pin6: VCC

Pin1: GND

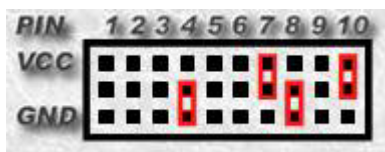
- *A6cctalk, AC6cctalk, X6cctalk, Z6cctalk y C6cctalk validators:*



Pin7: VCC

Pin8: GND

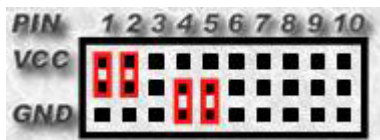
- *Cctalk and discriminator Hopper U II:*



Pin7 y Pin10: VCC

Pin4 y Pin8: GND

- *Serial Hopper U II:*



Pin1 y Pin2: VCC

Pin4 y Pin5: GND



The User Tool (HeUs)

What is HeUs for?

The User Tool is a PC application that allows you to:

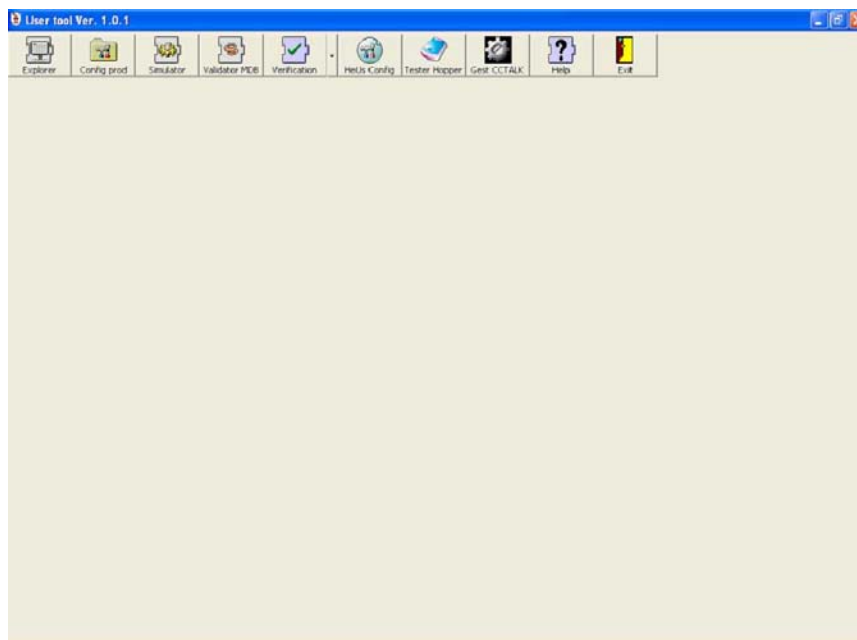
- Communicate with any vending device that has PGA protocol.
- Simulate a vending machine to test coin changer devices.
- Edit vending device configuration files.
- Configure, adjust, tele-programme and update firmware on vending devices.
- Handling Smart Media Cards to use with TL21 Terminals.

Requirements

The requirements necessary to execute the User Tool are:

- A compatible PC (>PIII) with at least 256 MB ram and a free serial port.
- 10 MB of hard disk space.
- Windows 98, Windows NT, Windows 2000 or Windows XP.

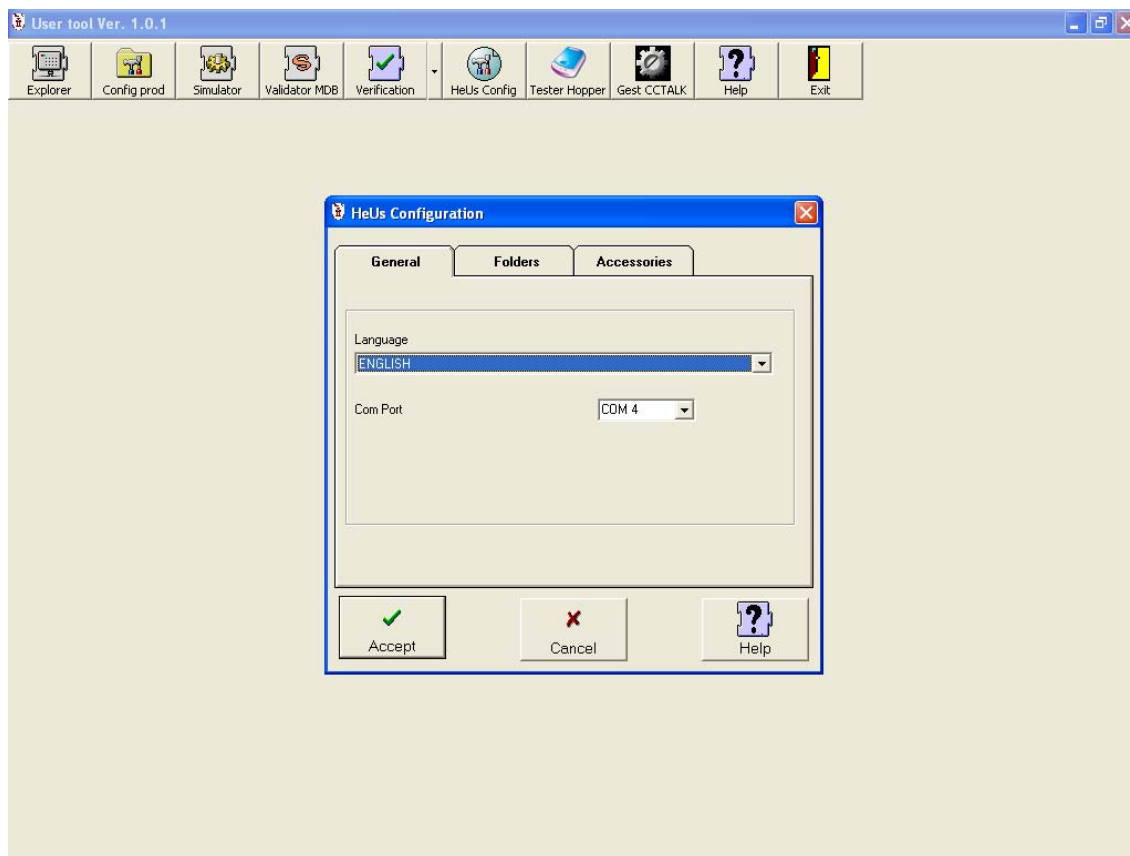
The main screen of HeUs



The previous figure shows the main screen of the User tool. The title bar shows the version of the programme being used. The following buttons can be found on this screen:

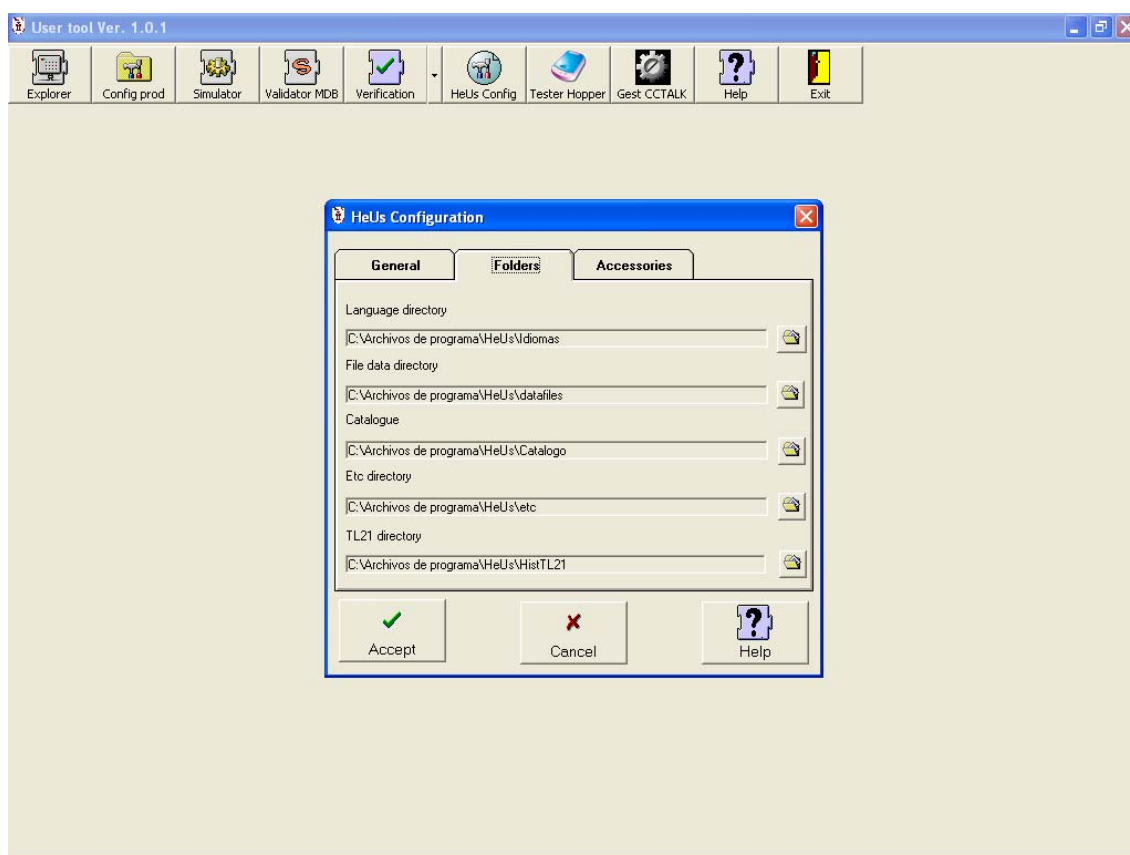
- **Explorer:** This gives access to the Device Explorer that allows you to connect to the different compatible devices using PGA protocol.
- **Vending configuration:** This gives access to the creation and edition of the vending device configuration screen.
- **Vending machine simulator:** This gives access to the vending machine simulator which with the help of a *coin changer tester*, can test that the protocol in the coin changer works correctly.
- **Machine simulator for MDB validators:** This gives access to the Machine simulator for MDB validators which with the help of a *coin changer tester*, can test the MDB validators, as C6 validator, works correctly.
- **Verification :** When the drop-down arrow is selected, the different module and product tests which can be performed are accessed.
- **Configuration :** Accesses User Tool configuration.
- **Tester hopper and Gest CCTALK :** Launches the Tester hopper and Gestor CCTALK applications without exiting the User Tool.
- **Help :** Gives on-line help for the User Tool. This button appears in the different windows of the application, offering help by context.
- **Exit :** This button appears in the different windows of the application to close the window being displayed. In this case, the current window is exited, i.e. the application is exited.

Configuration of HeUs

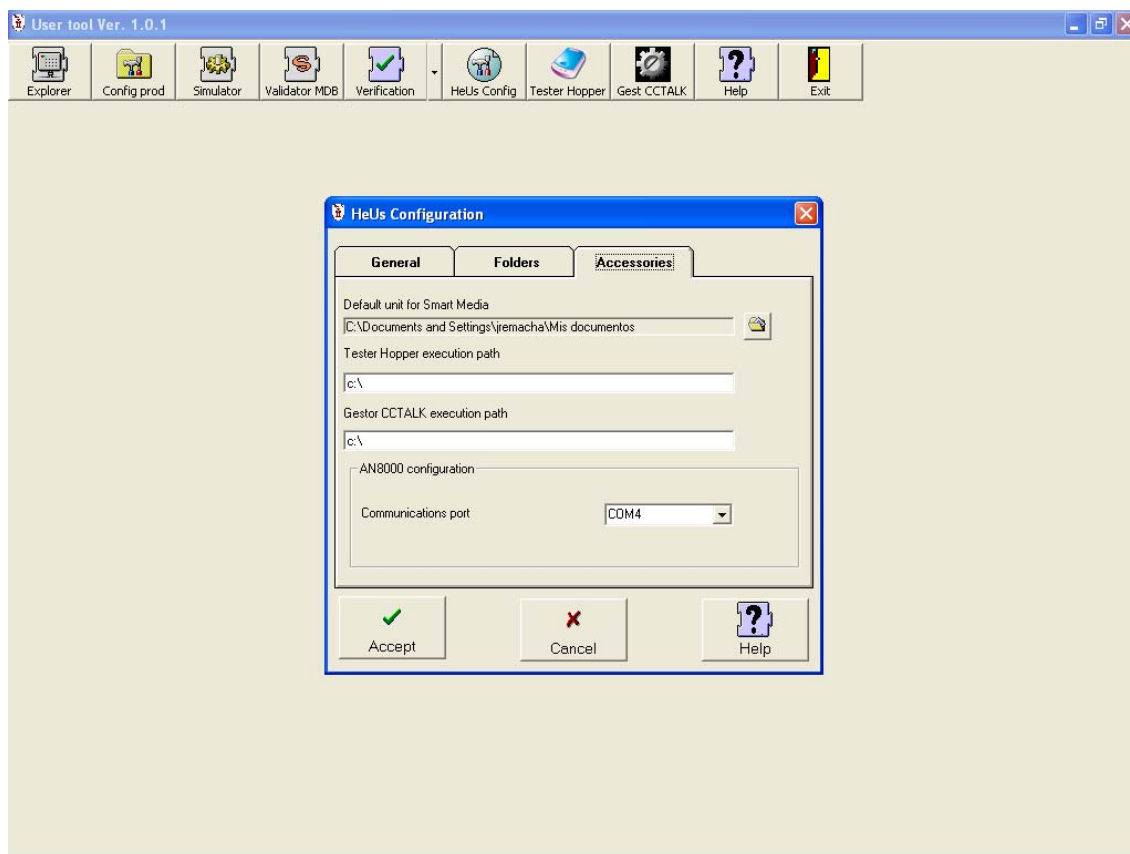


The above figure shows the different configuration options that modify the way the HeUs application works, which are:

- **General** : The general options of the application, which are:
 1. **Language**: The language that is used to present all the messages of the application. On selecting the language and pressing the button “Accept”, all the texts change to that language automatically.
 2. **Communication port**: HeUs carries out communication through a serial port on the computer. This configuration item is used to indicate which serial port to use.



- **Folders** : The options of the different folders used by the programme.
 1. **Directory of languages**: Indicates where the message files in the different languages are stored.
 2. **Directory of data files**: HeUs looks for the data files in this directory, (firmware, tele-programming, settings and device configuration files).
 3. **Catalogue Directory**: Indicates where the product catalogue is stored. The product catalogue tells HeUs about the different characteristics of the modules and products so it can manage, communicate and edit their configurations.
 4. **Directory of configurations**: Indicates where the configuration files are stored. For example, here is where the different vending machine simulator configurations or data for testing the coin changer are.
 5. **Directory of TL21 files**: This is the directory that all the files received from the TL21 terminal are stored.



- **Accessories** : The configurations of the different accessories which can be connected to the User Tool.
 1. **Smart Media Unit**: Indicates which is the disk unit to communicate with Smart Media Card.
 2. **Run paths of the Tester Hopper and Gestor CCTALK applications**: Indicate the applications to be run when the Tester Hopper and Gest CCTALK buttons on the main screen are pressed.
 3. **Communications port with AN8000** : To select via which port the User Tool will communicate with the AN8000 change giver.



PGA protocol

What is PGA protocol?

PGA protocol (Protocol General Ampasa) is a communication protocol invented by AZKOYEN Medios de Pago, S.A. that allows the devices that use it to communicate with the different modules that make them up and with the exterior. This allows the creation of different products by combining some modules with others and the communication with tools for testing and external maintenance. The principle advantage is the versatility and uniformity as it allows the creation of tools that communicate with all the products in a universal way.

Which devices use PGA protocol?

The new range of modular products use the PGA protocol internally and to communicate to the exterior.

What can be done with PGA protocol?

Download firmware

All the devices that use the PGA protocol are firmware updateable using PGA protocol, that is, their internal software can be updated to incorporate new advances or increase compatibility.

Download configuration

For devices that can be configured, PGA protocol can be used to read and write all the configurable values. This allows the user to centralise and standardise all the configurations of the products.

Download adjustments and tele-programming.

The PGA protocol contains tools to carry out the downloading of tele-programming tables and the reading and writing of adjustments to the validation tables of the products that have a coin sensor module, for example the coin validator, coin changers and other devices.

Other mechanisms

PGA protocol is used by other support and management devices such as the Coin Changer Tester and the TL20 and 21 terminals to communicate, in a universal way with any vending device that uses this protocol. This allows the storage of data, testing and control of general vending protocols such as the Executive, BDV and MDB.



No PGA DEVICES

There are other devices that not use the PGA protocol but, they can be handled by The User Tool :

- TL21 Terminal.

TL21 Terminal use the PGA protocol for PGA devices communications, (validators, coin changers, etc) and it use a propriety protocol for to communicate with User Tool.

- Smart Media Card

The Smart Media card can be used by TL21 Terminals and hold the files trasferred by the User Tool. A external device is used for communicate the Smart Media card with the User Tool. This external device is connected on floppy disk unit or USB port and simule a disk unit.

- AN8000 change giver

The MOE2PROM tool was previously used to communicate with and configure this device. The same operations can now be performed with the User Tool.

The Coin Changer Tester

What does the Coin Changer Tester do?



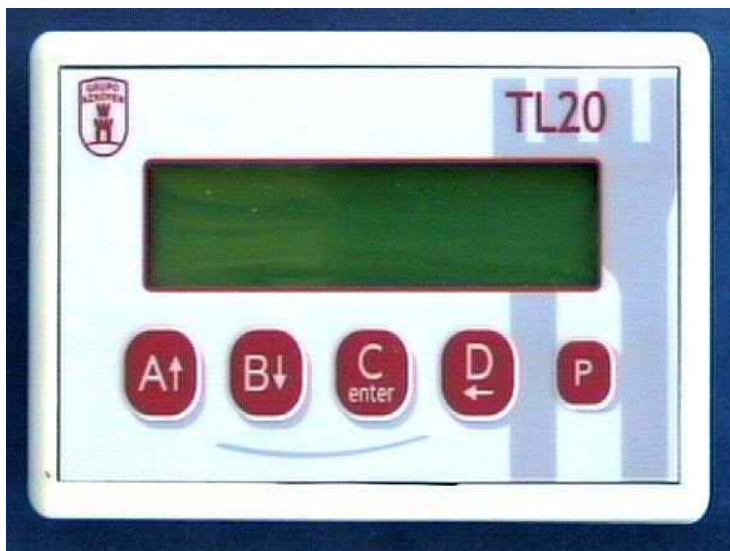
The coin changer tester is a product designed principally to carry out test on the coin changers. It is not an autonomous device so it needs to be used together with the User Tool. It has two serial ports, one to communicate with the User Tool and the other to communicate with the device to test using PGA protocol. It also has connectors to power and communicate with Executive, BDV, MDB and price lines protocols. It has three principle functions:

- Simulation of a vending machine. It allows the testing of the coin changer with respect to the corresponding protocol (Executive, BDV, MDB and price lines). For this testing it is not necessary for the coin changer to have PGA protocol, it will work with any of the vending protocols supported.
- Coin changer testing. It carries out specific tests on the changers that have PGA protocol, testing the correct working of the different modules that make up the changer.
- Module testing. Using its SPI technology port, it can communicate independently with the modules and carry out tests and maintenance.

As it is a device that has PGA protocol, its firmware can be updated.

The TL20 terminal

What is the TL20 terminal and what is it for?



The TL20 terminal is a device that provides storage and management of data files for sending to vending devices that have PGA protocol.

The loading and management of the files that the TL20 contains is carried out by connecting it to the serial port of a PC, powering it with an external power source and using the User Tool to communicate with the device with PGA protocol. Once connected and using the User Tool you can:

- Visualise the contents of the TL20 terminal memory.
- Read and write firmware, configuration and adjustment files that can later be sent to other devices with the TL20.
- Delete and compact the TL20 memory.

When the TL20 is connected to a vending device it gets its power from the device it is connected to and it is not necessary to externally power it. The TL20 has the capacity to act as a keyboard and display for PGA coin changers.



Other PGA devices

There are other devices that implement the PGA protocol.

PGA validators

All the validators in the new modular range implement PGA protocol in the internal communication between modules and the communication with the exterior. These validators can be firmware updated, configured, adjusted and tele-programmed using the PGA protocol.

PGA coin changers

The Exactor family of coin changers implement PGA protocol. It also has the typical firmware updating, configuring, adjusting and tele-programming operations, and the coin changers can be tested using the PGA protocol. Possible tests are:

- Final test: a complete functional test that checks the different functions and devices in the changer, such as, sensors, photodiodes, extractions, coin admission, refund lever, keyboard, etc...
- Extractor module test: Allows the checking of the extractor modules that are in the changer, such as, continuous extractions and checking is correct functioning.
- Vending machine simulation: Allows the checking of any coin changer, whether it has the PGA protocol or not. To carry out this test, a coin changer tester is necessary.

TL21 terminal

The new version of the TL21 terminal implements the PGA protocol so it can carry out firmware, configuration, adjustment and tele-programming operations on vending devices that implement the protocol.

Independent modules

Using a Coin Changer Tester it is possible to carry out tests on independent modules, such as, test on sorter or extractor modules.

The TL21 terminal

What is the TL21 terminal and what is it for?

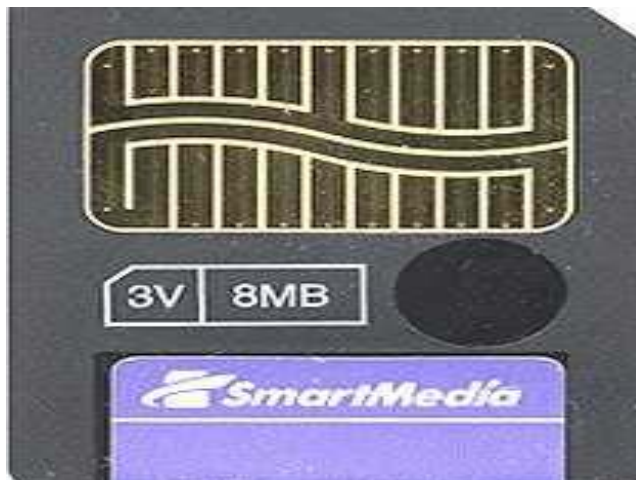


With the TL21 Terminal is possible handle PGA and NO PGA validators and coin changers. It is possible NO PGA validator teleprogramming and write configuration, adjustment and firmware for PGA devices. The programations can be hold inside Smart Media Card writed by The User Tool

The TL21 terminal can be connected to the PC using a owner protocol. It is connected to PB serial port and using the User Tool, is possible read the terminal history file, firwarize the terminal, and sincronizing the terminal clock.

THE Smart Media CARD

What is the smart media card and what is it for?

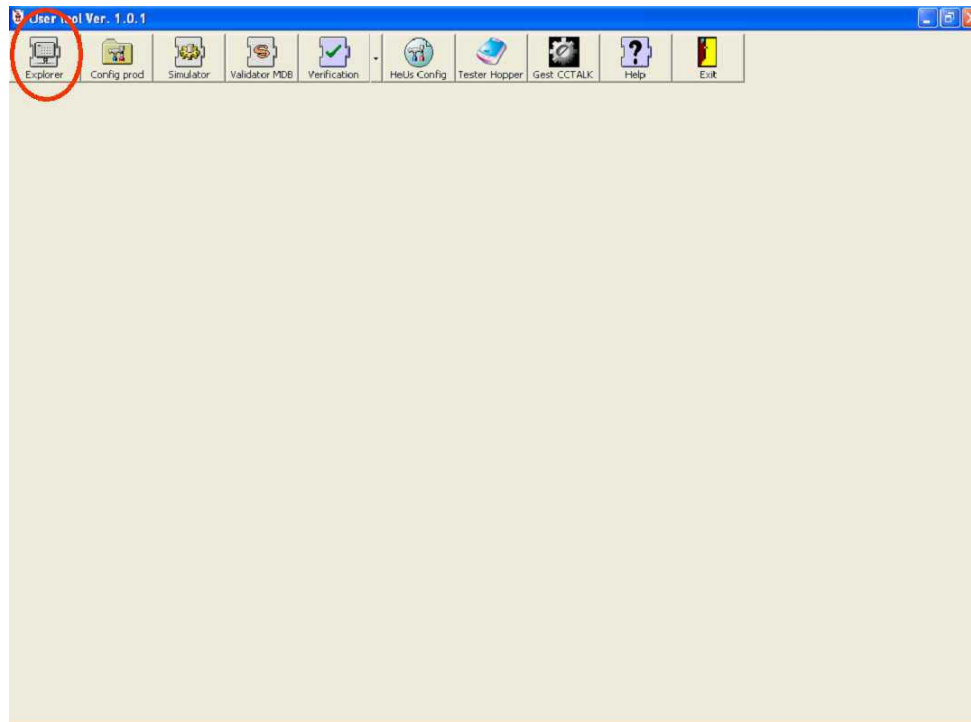


The Smart Media card can hold Teleprogramming, adjustment, firmware and configuration files to send to PGA and NO PGA devices by TL21 terminal. To write files in Smart Media card a external device is required, connected to the PC. The external device is connected to USB port or introducing in floppy disk unit. The User Tool handle the device simulating a disk unit.



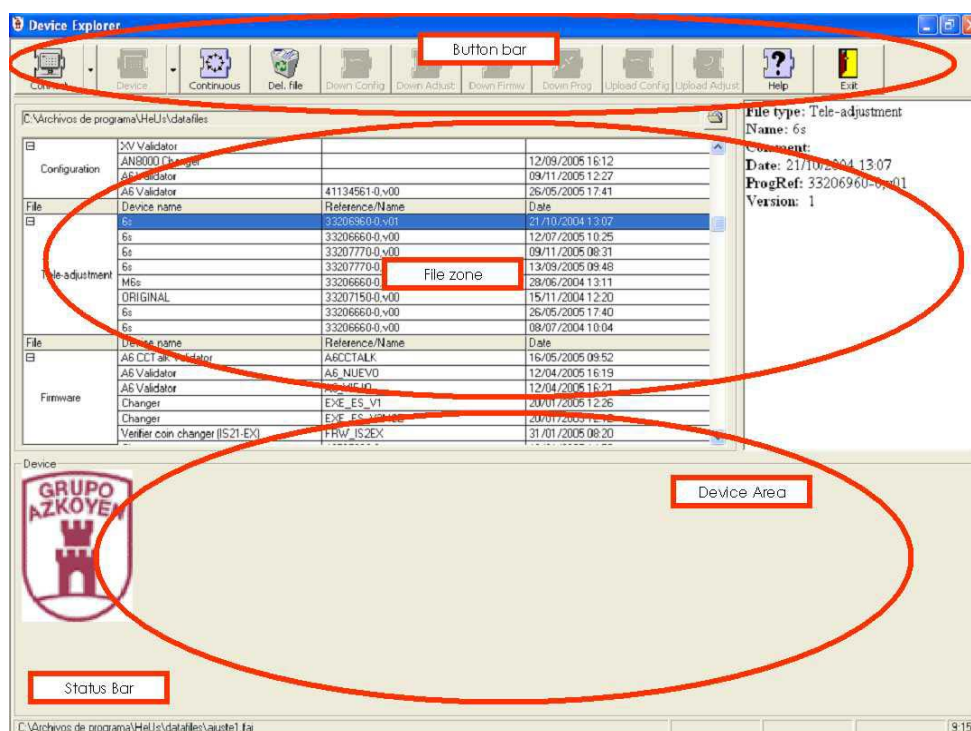
The Device Explorer

The device explorer communicates with any device that supports PGA protocol. To access the explorer you should press the “Explorer” button on the main screen of the User Tool.

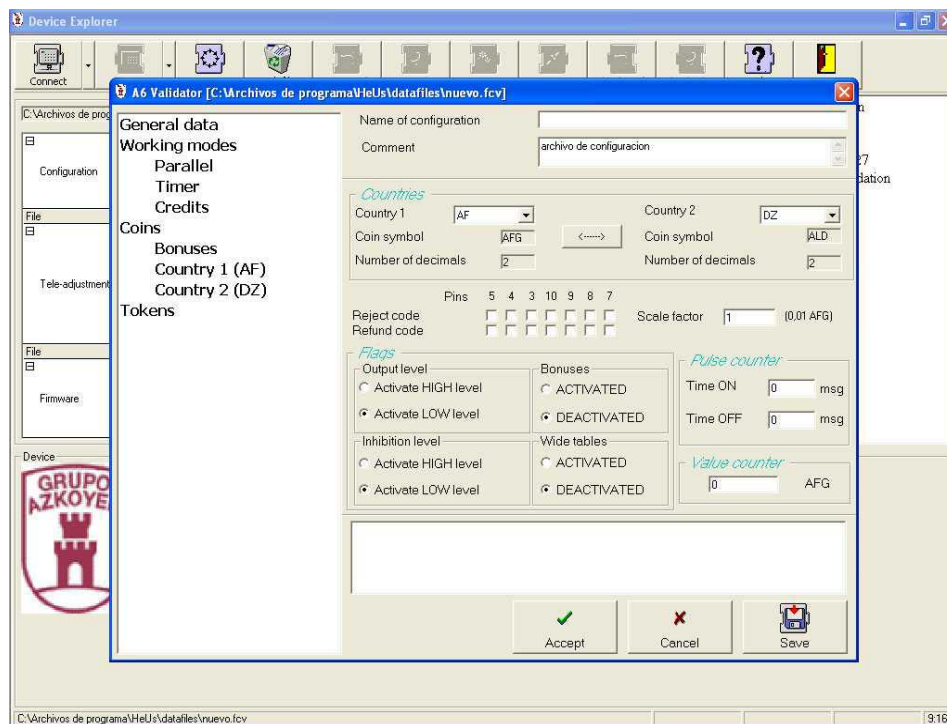


In the following figure you can see the appearance of the device explorer window where the following can be seen:

- **Button bar:** It gives access to the different functions of the device explorer. Depending on the selected file in the file area and the device that is connected, there will be different buttons activated.
- **File area:** This shows the list of files the data directory contains. The contents of this list will be different depending on the device connected; only giving access to those files which can be used for that device. The directory shown can be selected with the change directory button. The specific data of the selected file appears in the information panel.
- **Device area:** This shows the information about the device that is connected. Depending on the type of device different tools will appear that allow access to the specific functions. On the left there is a photograph of the device, as long as it is available in the product catalogue.
- **Status bar:** Shows the information on the result of the last operation carried out. It usually shows the name of the file selected in the list of the file area. While an operation is being done, a progress bar shows the progress of the operation. On finishing it shows the result of the operation.



Direct edition of a device configuration

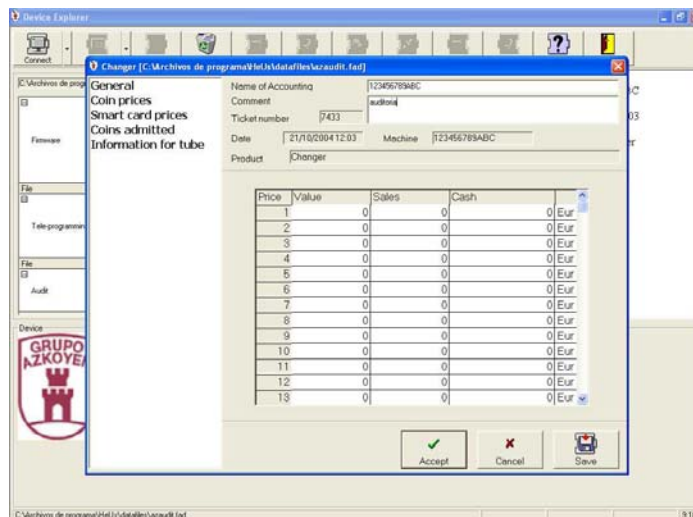


Double clicking on the device configuration file will give access to the edition of the configuration file. For more information on editing the file see [Editing the configuration](#).



Showing a audit file

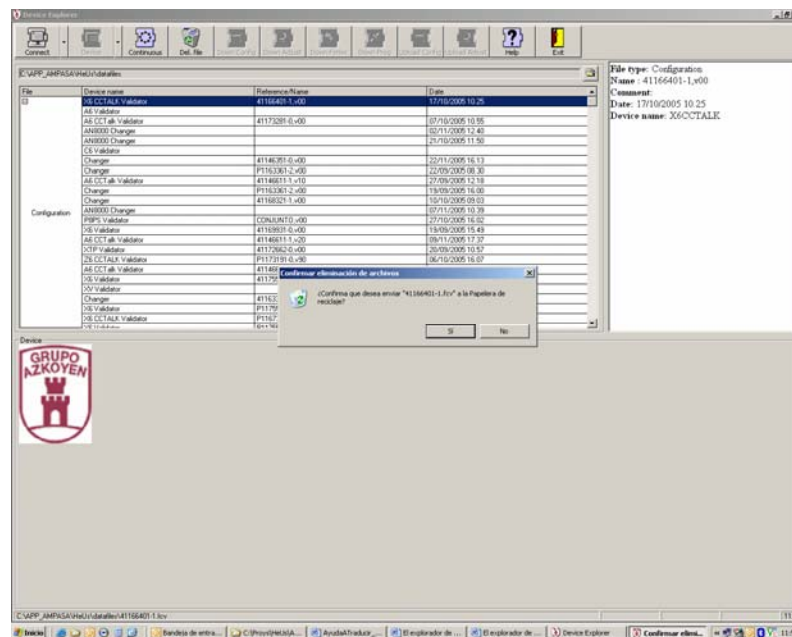
Double clicking on the device configuration file will give access to the visualization of the audit file.



The window show same layout that configuration's windows, but you can't edit the values showed. The "name of audit" value and "comment" value can be edited. If you click Accept button you save the changes in same file. You can save the changes in another file clicking Save as button.

Deletion of files from the directory

Files can be deleted from the directory by selecting them on the data directory panel and pressing the button "Delete". The User Tool requests confirmation. The files are always sent to the Recycle bin and can therefore, always be restored.



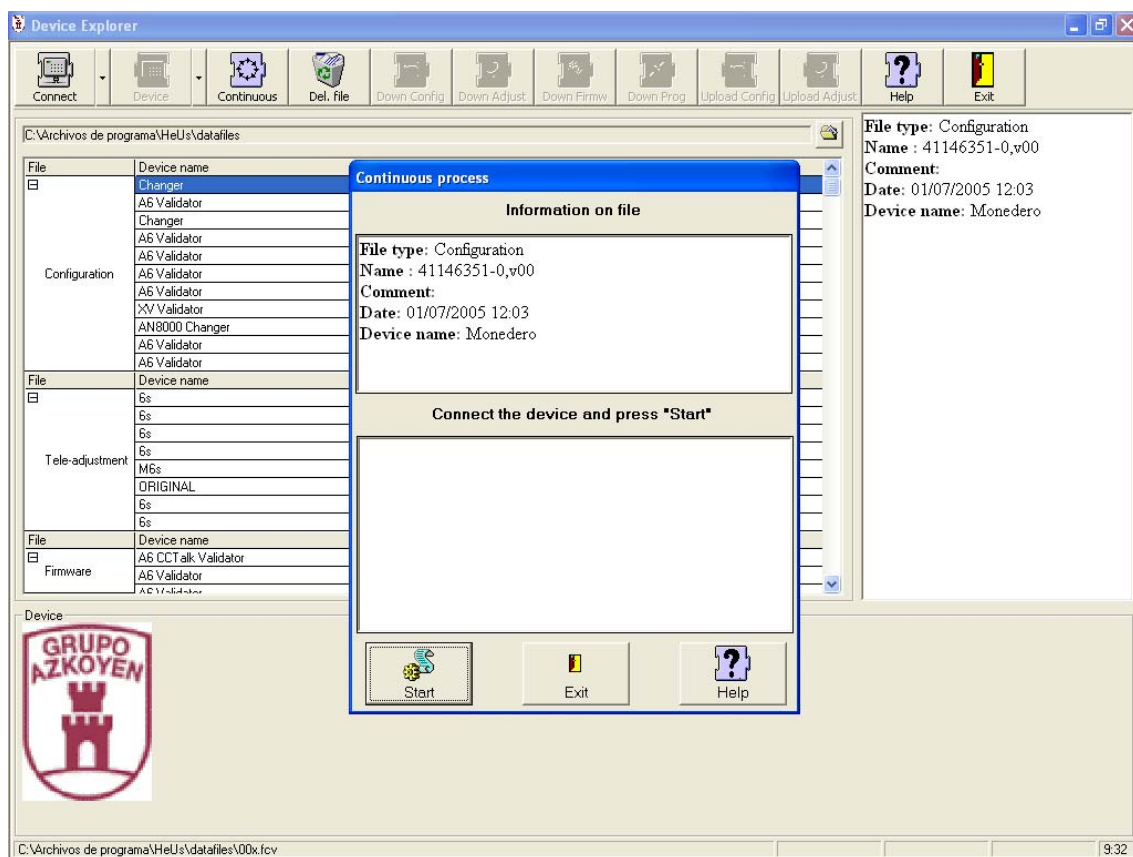
Continuous data loading

It is sometimes necessary to load the same file to a large number of devices. In this event, the functionality described in the Device Explorer is not suitable. The window “Continuous process” appears by selecting the file to load and pressing the button “Continuous”.

The data of the file selected for sending appear at the top of this window. A console is displayed at the bottom with the messages of the operations performed. Connect the device to which the file is to be loaded and press the button “Start”. To repeat the operation, connect the new device and press the button again.

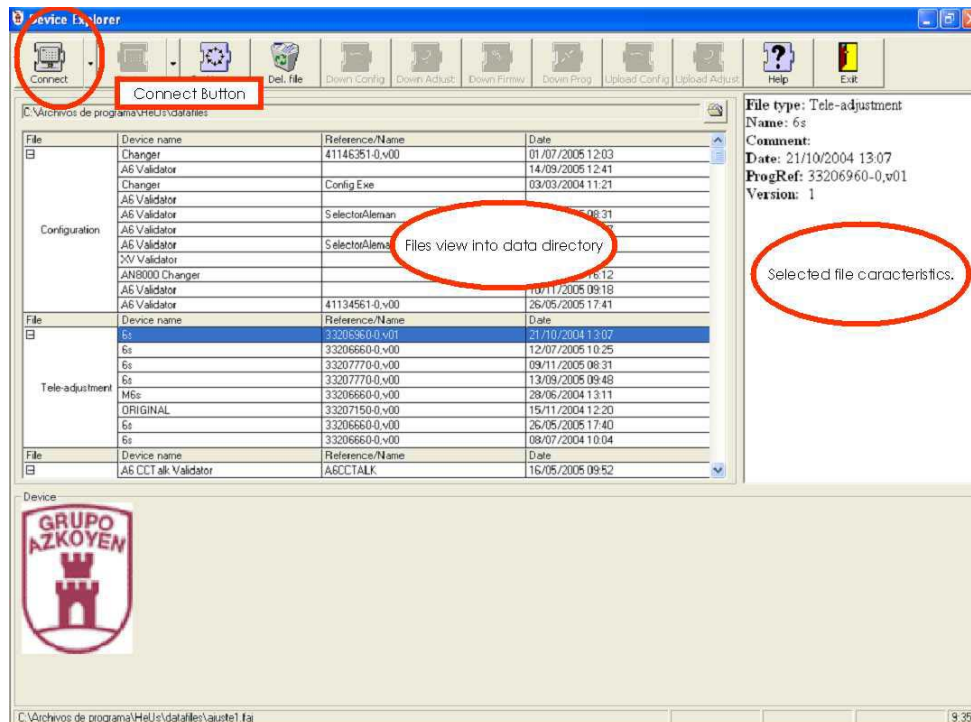


USER MANUAL OF USER TOOL



Connection to a device

The first operation that should be done to communicate with a device is making a physical connection. The kit contains all the necessary looms to make the physical connections between the vending device and the serial port on the PC. Once the physical connection has been made the next step is to establish communication with the device by pressing the button “Connection” in the device explorer window.

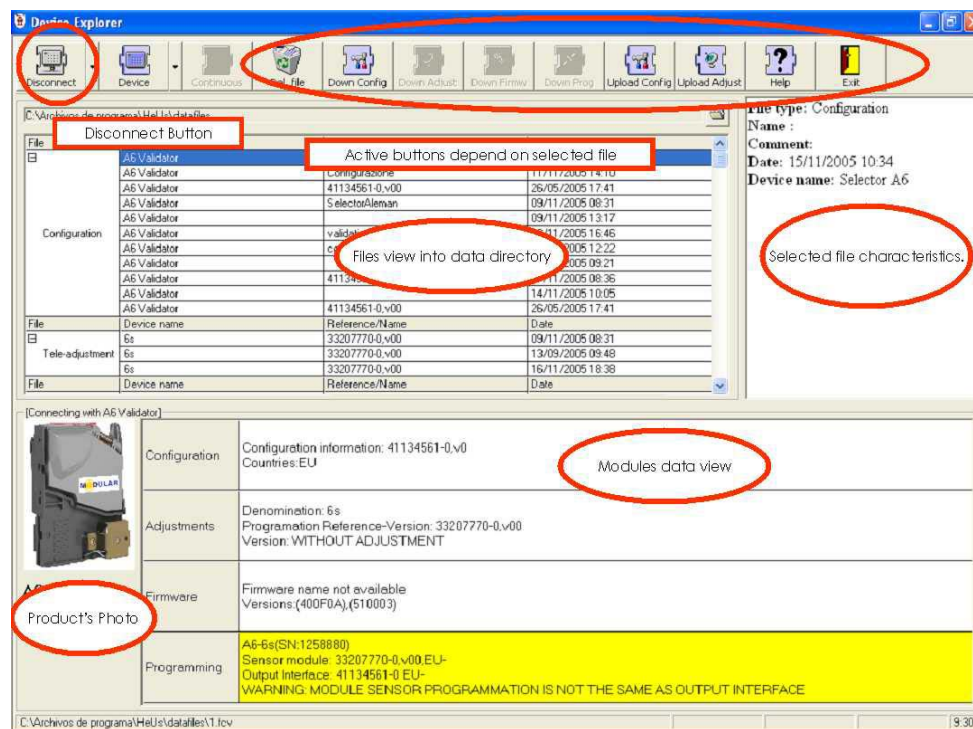


After establishing communication the data corresponding to the device detected is shown in the device area. The format of this data will be different depending on the type of device that is connected. The button “Device” will also present a different menu depending on the device connected. The file list will only show the files related to the connected device or files that operations can be carried out on.

Connection with PGA devices

Information on the device

When we connect a vending device, the following window is shown:

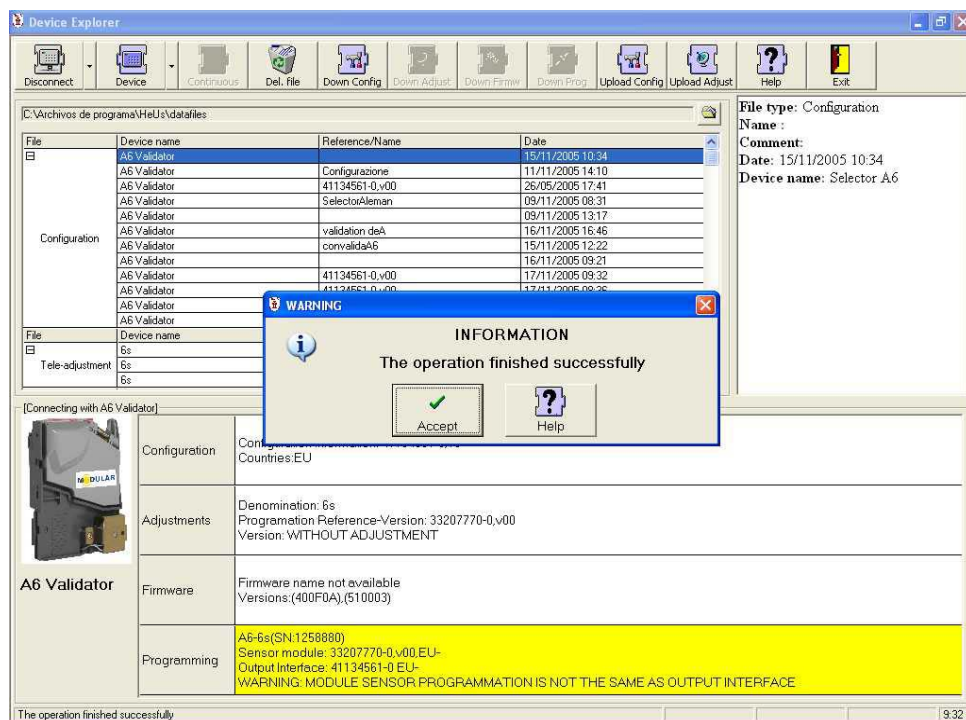


You will see that the “Connect” button has changed to “Disconnect” and that the buttons are active, depending on the device and the file selected in the file list. If the product detected exists in the catalogue, its name will appear in the device area and a photograph of the product will appear in the left panel of the device area. In the right panel there will be a grid that will show the product characteristics as rows: configuration, setting, firmware and programming.

Information in the cells depends on product state and their composition. When product is not in correct service, the cell will appear in red colour

For the modules that are configurable, the configuration name of the configuration loaded in the device is shown. The setting flags will appear for those modules that are adjustable. In the programming row, the name and version of the programme of the programmable modules is shown. The name taken from the firmware file will be shown in the firmware row. If it is not available in this file, the numbers of the different module versions will be shown.

If the device has invalid firmware, the User Tool only is able to reprogram the product.



Disconnecting the device

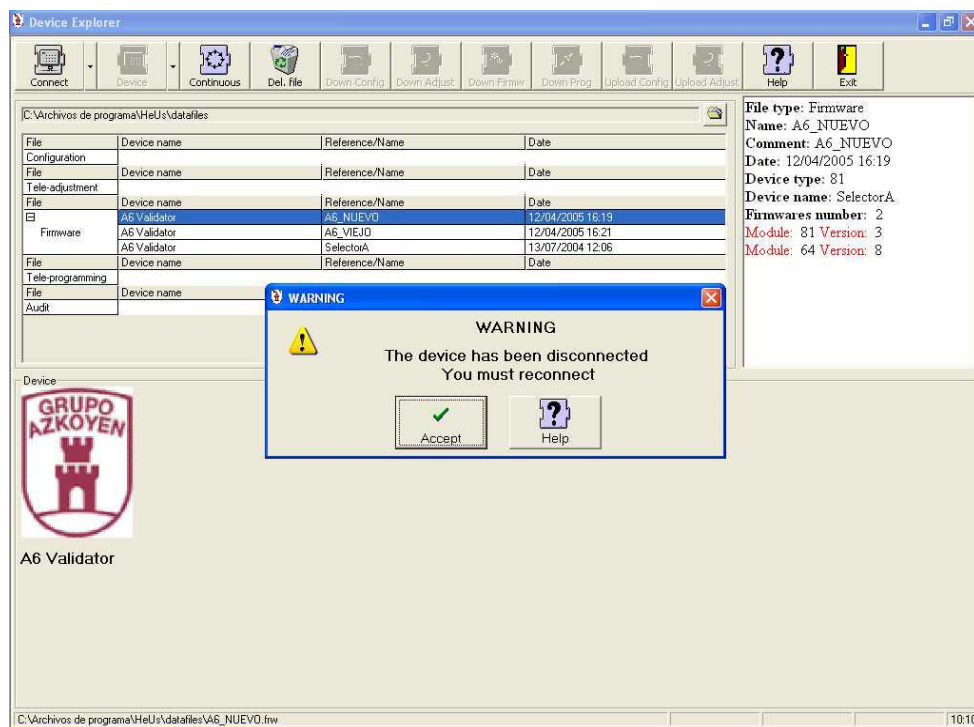
To disconnect the device it is important to follow the disconnection process. Press the “Disconnect” button. The User Tool will switch off the device, if it is controlled by a Changer Tester. For more information see [Connection to a Changer Tester](#).

Reconnecting the device

The User Tool cannot detect if a device has been disconnected by itself, but it can detect that the device that is connected to the port has been reset.



USER MANUAL OF USER TOOL

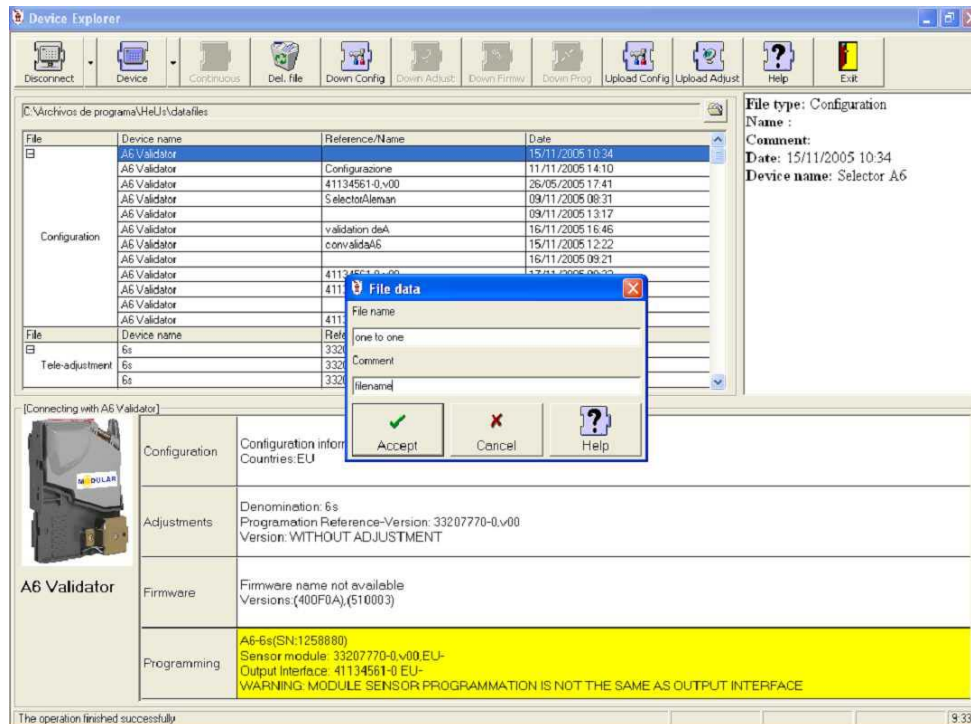


When this happens, the User Tool will show the above screen capture and carry out the disconnection process automatically. If reconnection is required, it is necessary to press the “Connect” button.

Operations with a device

Reading operations

There are two possible reading operations that can be carried out on the devices; reading their configuration and reading the adjustments. For these readings it is necessary that the device be configurable and adjustable respectively.



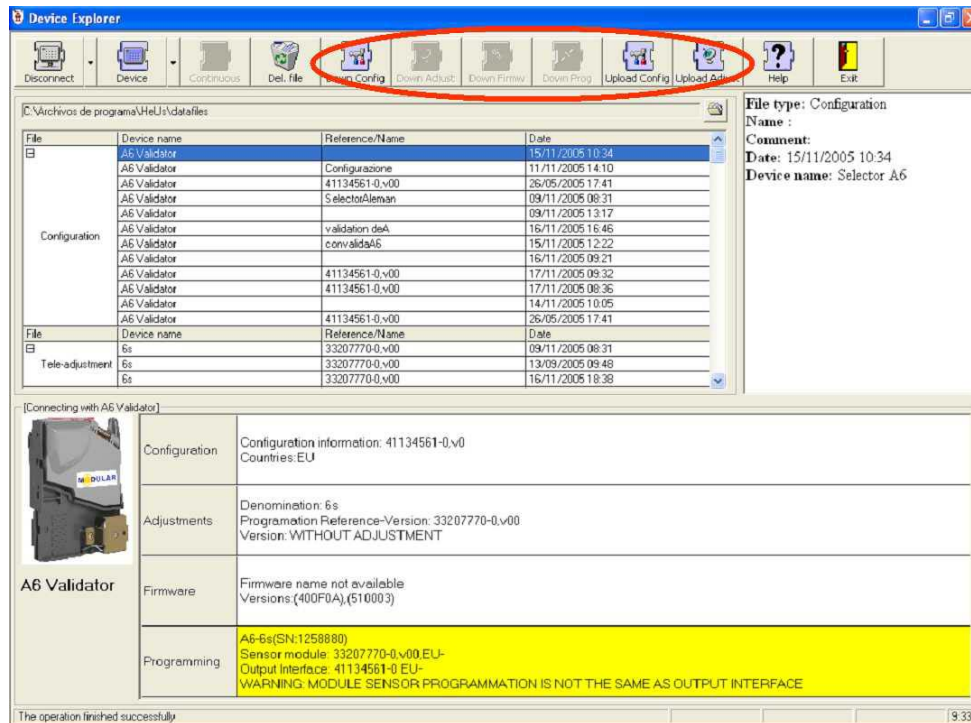
To carry out these operations you should press the corresponding button in the button bar. Pressing on “Read config” will indicate that you wish to carry out a reading operation of the configuration and y pressing on “Read adjust” will indicate that you wish to carry out a reading operation of the adjustments of the device.

In either of the two options, a window will appear that you can indicate the name of the file and the comment about the file to type in. If the file name does not include a directory, it will be stored in the default configuration directory.

Writing operations

The writing operations that can be carried out are:

- Updating the firmware.
- Writing the configuration
- Writing the adjustments
- Writing the tele-programming



The first thing to do is select a file that you wish to write to the device. Depending on the file selected, the corresponding button on the button bar will be activated. To start the operation, simply press the button.

Updating the firmware

The firmware operation allows you to modify the internal software of the device. This allows the implementation of improvements, corrections and customisation of the working for a particular client.

This is a delicate operation as the device could be programmed incorrectly and need to be sent back to the factory. It is also a slow operation that can take various minutes. To check the progress of the operation a coloured progress bar will appear in the status bar which will advance as the operation progresses.

Writing adjustments, configuration and tele-programming

For the devices that allow adjustments, configurations or tele-programming, principally validators and coin changers, you may carry out the writing of these parameters as previously explained.

Finalising the operation

On finalising any of the previous operations, a window indicating the operation was successful will appear for a limited amount of time. If the operation finalized with an error, a window indicating the operation was unsuccessful will appear and the error will be shown in the status area of the window.



USER MANUAL OF USER TOOL

Device Explorer

Disconnect Device Continuous Del. file Down Config Down Adjust Down Firmw Down Prog Upload Config Upload Adjust Help Exit

File type: Configuration
Name :
Comment:
Date: 15/11/2005 10:34
Device name: Selector A6

File	Device name	Reference/Name	Date
Configuration	A6 Validator		15/11/2005 10:34
	A6 Validator	Configurazione	11/11/2005 14:10
	A6 Validator	41134561-0.v00	26/05/2005 17:41
	A6 Validator	SelectorAleman	09/11/2005 08:31
	A6 Validator		09/11/2005 13:17
	A6 Validator	validation deA	16/11/2005 16:46
	A6 Validator	convalidaA6	15/11/2005 12:22
	A6 Validator		16/11/2005 09:21
	A6 Validator	41134561-0.v00	17/11/2005 09:32
	A6 Validator	41134561-0.v00	17/11/2005 09:36
Tele-adjustment	6s		
	6s		
	6s		

[Connecting with A6 Validator]

A6 Validator

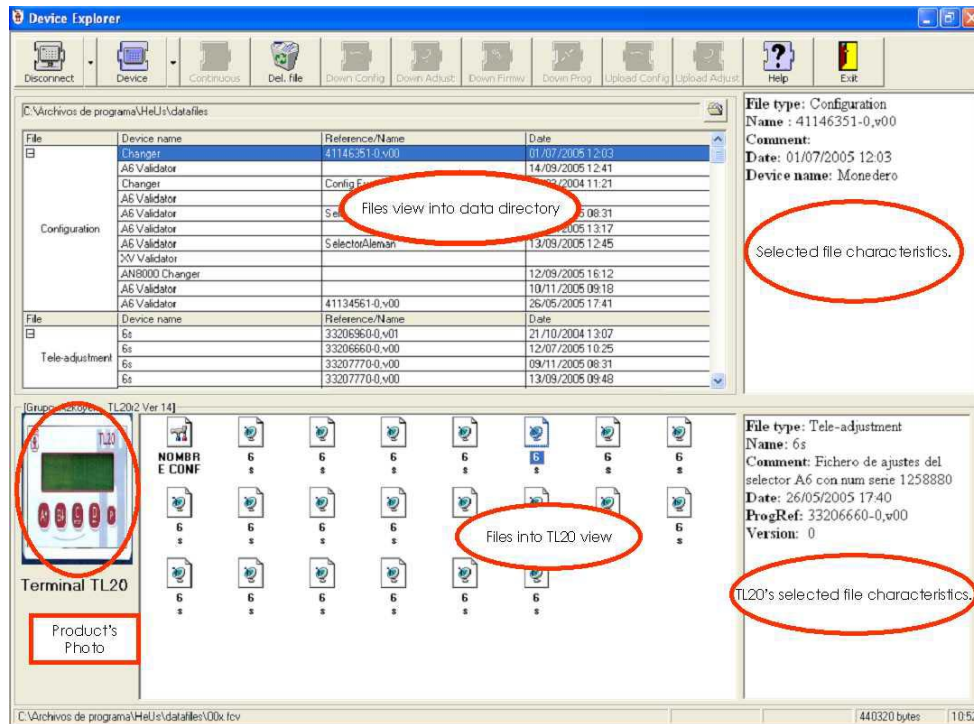
Configuration	Countries:EU
Adjustments	Denomination: 6s Programation Reference-Version: 33207770-0.v00 Version: WITHOUT ADJUSTMENT
Firmware	Firmware name not available Versions:(400F0A),(510003)
Programming	A6-6s(SN:1258880) Sensor module: 33207770-0.v00.EU- Output Interface: 41134561-0 EU- WARNING: MODULE SENSOR PROGRAMMATION IS NOT THE SAME AS OUTPUT INTERFACE

The operation finished successfully

9:32

Connecting to a TL20 terminal

When the TL20 terminal device is connected, the device area is slightly different to that of a normal device.



The differences can be seen in the above figure. There are two new panels along with the panel that shows the photograph of the product in the device area. The files in the TL20 terminal memory can be seen in the central panel and the additional information of the selected file in the previous panel. The TL20 terminal firmware version appears with the device name in the title area.

Contextual menu

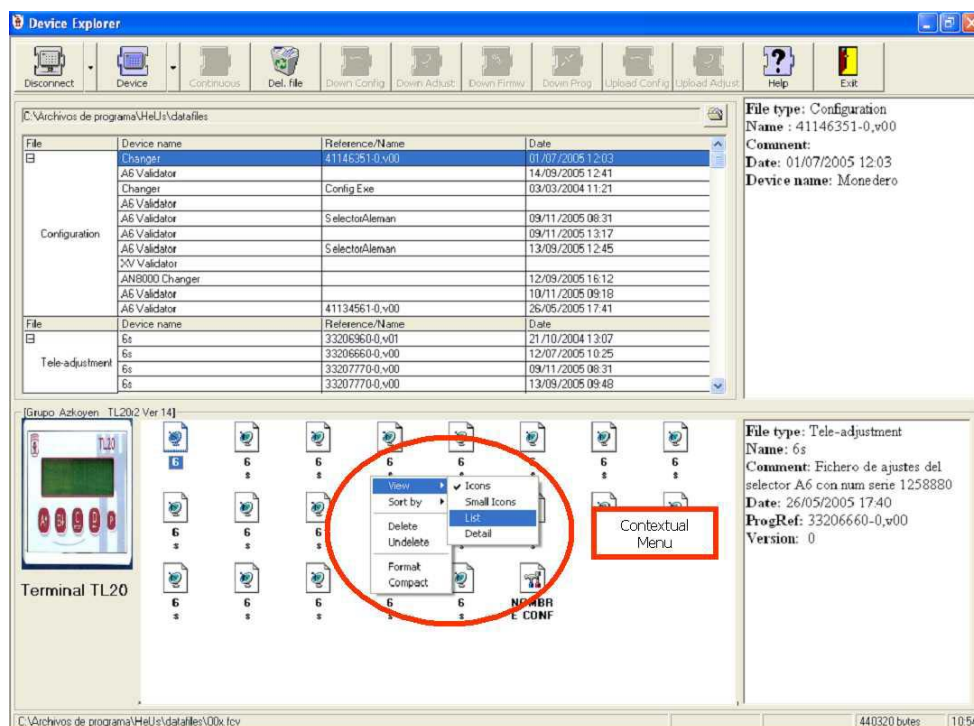
On pressing the right mouse button while in the file list panel of the TL20 terminal, the contextual menu will appear. This menu will give fast access to the special functions allowed by the TL20 terminal as well as the configuration items in the panel. These are:

- **View:** Select the viewing mode of the files in the TL20 terminal.
- **Order by:** Depending on the selected view, the order the files in the TL20 terminal are seen can be changed.
- **Delete:** Mark a selected file for deletion. The files in the TL20 terminal are only deleted when the memory is compacted. The files marked for deletion do not appear as strong as the other files.
- **Undelete:** This restored the file marked for deletion.

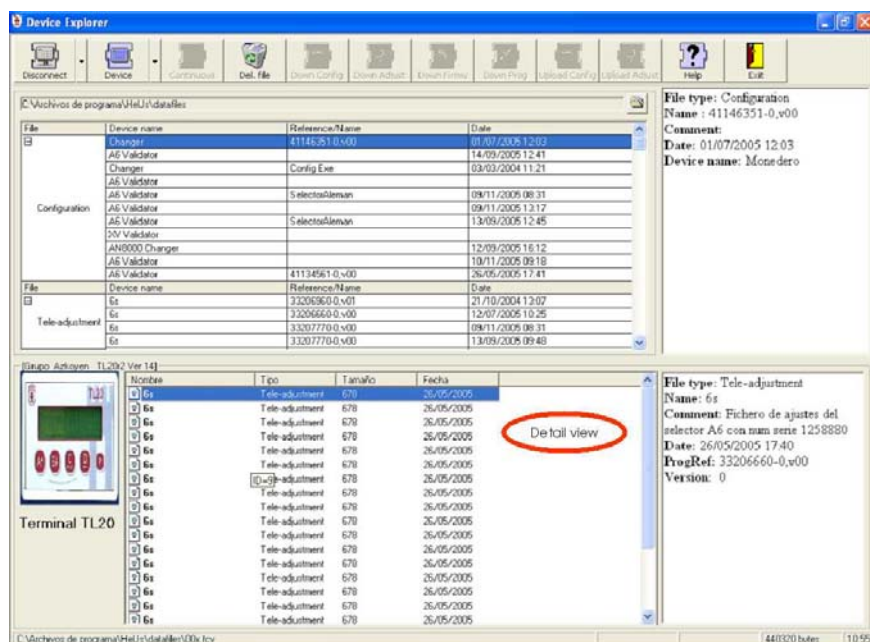


USER MANUAL OF USER TOOL

- **Format:** Eliminates all the files stored in the TL20 terminal memory and frees memory space.
- **Compact:** Eliminates all the files marked for deletion, thus freeing memory space.



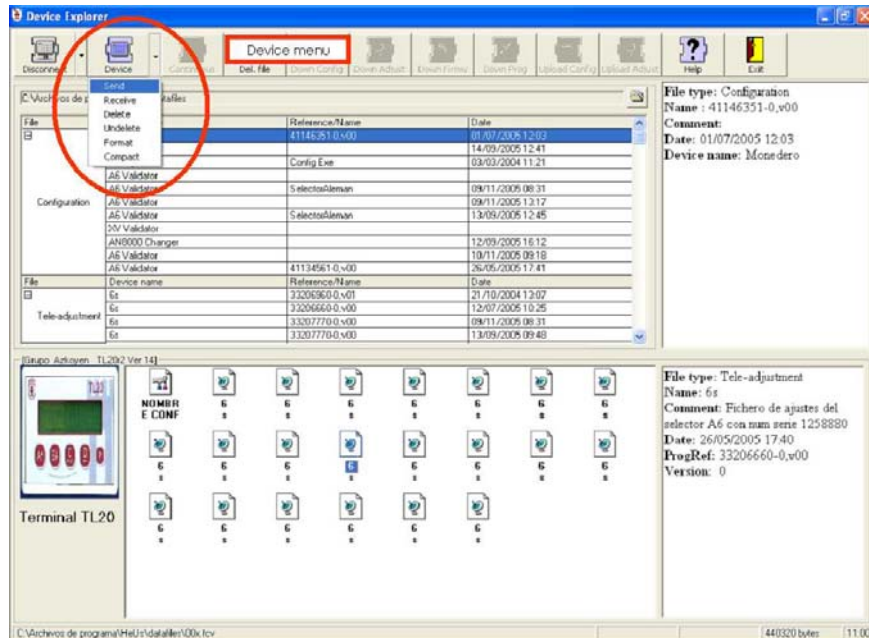
Content view



The above figure shows the appearance of the screen when the detailed view is selected. The possible views are Icons, which is the default view, small Icons, List and Details.

Send and receive files

The device button in the menu is used to send and receive files with the TL20 terminal.



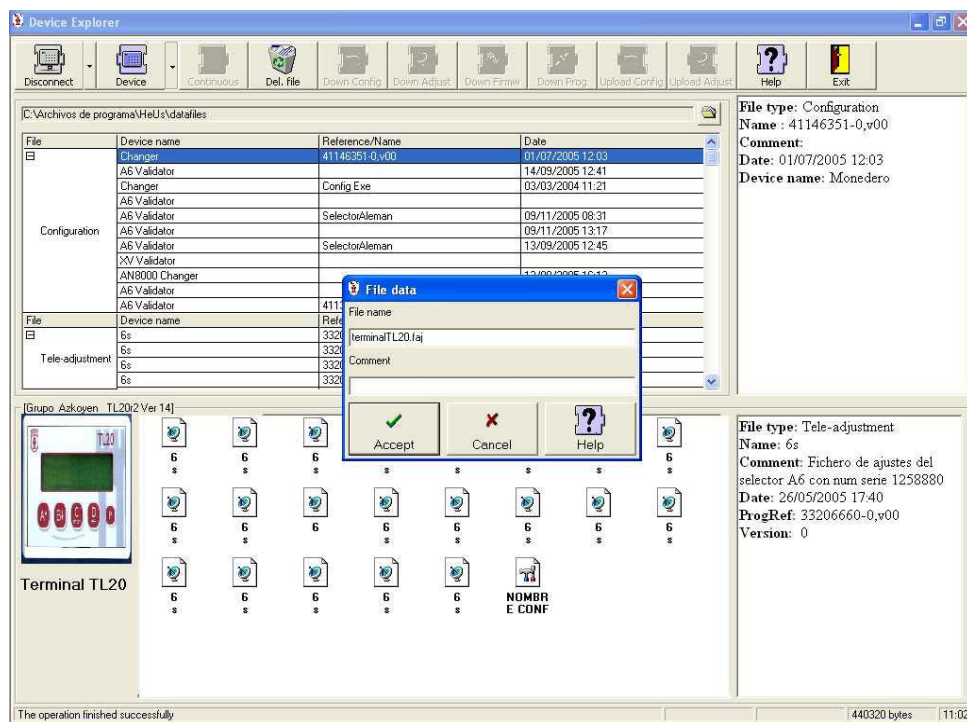
First select the file to be sent before sending the file to the TL20 terminal. Note that the tele-programming files have disappeared from the list. This is because the TL20 terminal cannot programme validators or coin changers and therefore cannot store files of this type. Once a file to be sent has been selected, the “Send” button is clicked. The operation takes a few seconds, so a progress bar appears in the device status area. A window appears to show the success or failure of the transfer, with the cause of the error in the status area.

To receive a file from the TL20 terminal, select the “Receive” button in the menu. A window will appear to allow the name of the file to be typed and a comment entered. If a directory has not been specified, the configured data directory will be selected.

The operation takes a few seconds, so a progress bar appears in the device status area. A window appears to show the success or failure of the transfer, with the cause of the error in the status area.



USER MANUAL OF USER TOOL





Delete and undelete files, compact and format

These operations briefly explained before, allows the memory of the TL20 terminal to be managed.

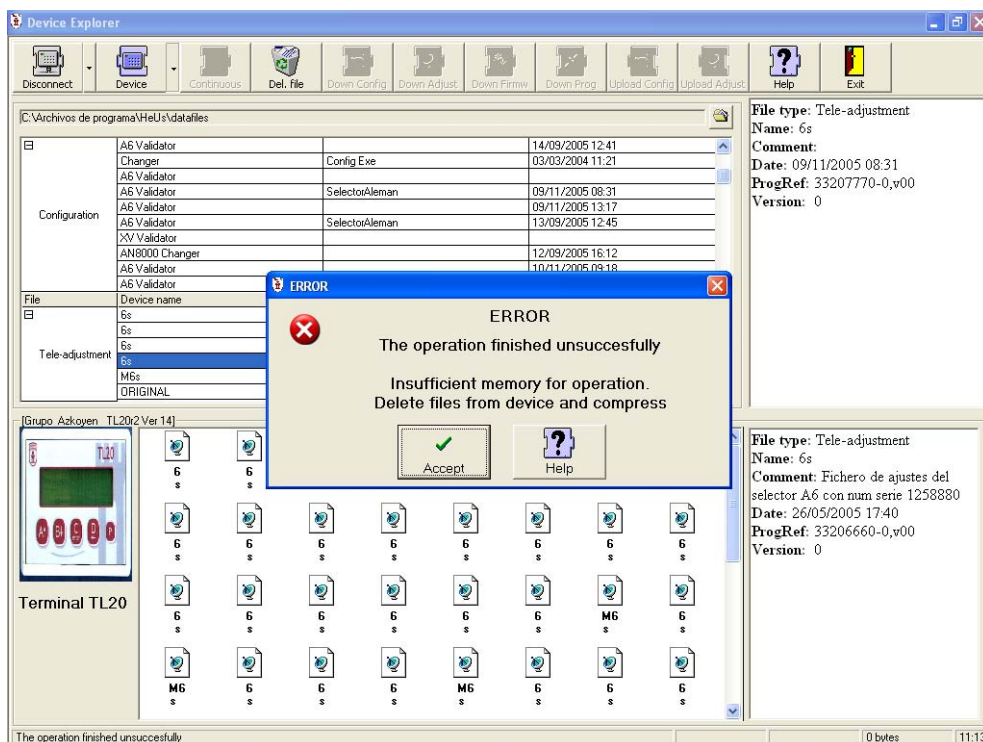
Using the “Delete” button in the menu does the same as using “Delete” in the contextual menu. This operation marks the selected file for deletion. The file will then appear dimmer than the other files to show it is not available for use. These files can be undeleted using the “Undelete” button or “Undelete” in the contextual menu.

Format the TL20 terminal memory will delete all the files with no possibility of recuperation. Compact the memory of the TL20 terminal implies the elimination of those files marked for deletion. This allows the freed space to be used for other files.

Memory run out.

The memory of the TL20 may run out as a result of sending files. It is possible to mark files for deletion and to compress the memory, reorganising the files and freeing the unused space.

The available memory on the TL20 terminal is shown in the bottom right-hand corner of the device explorer window.

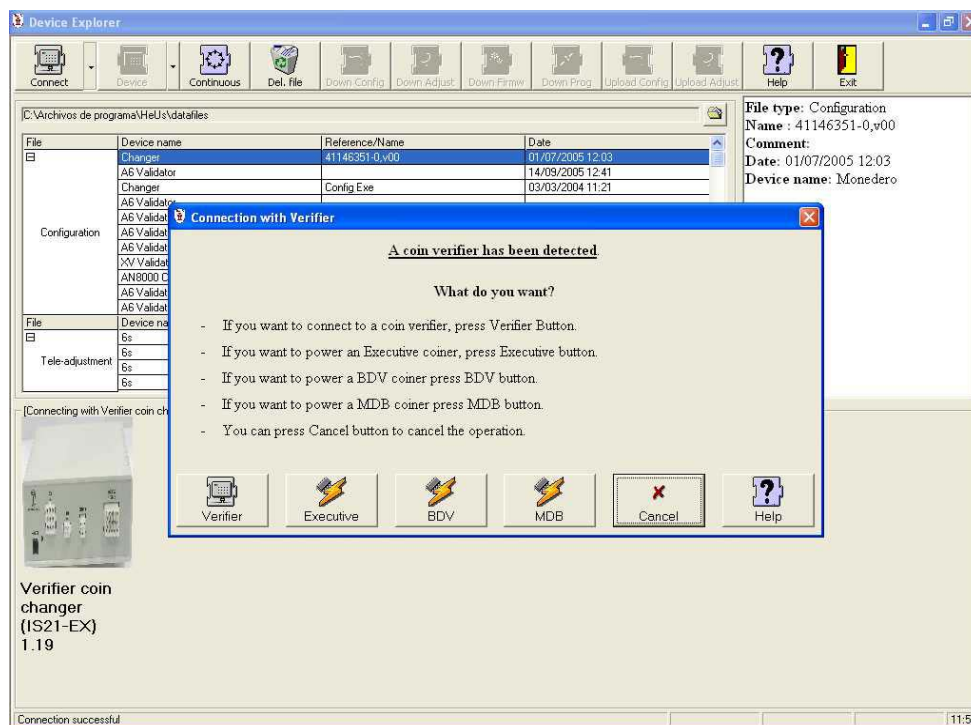


A message appears on the screen in the event of the memory running out when sending a file or firmwaring the device.

Connection to a Changer Tester

Connection to a Tester

When the connected device detected is a Changer Tester, the User Tool shows a window that allows connection with a coin changer that is connected to the secondary communication port of the Tester.

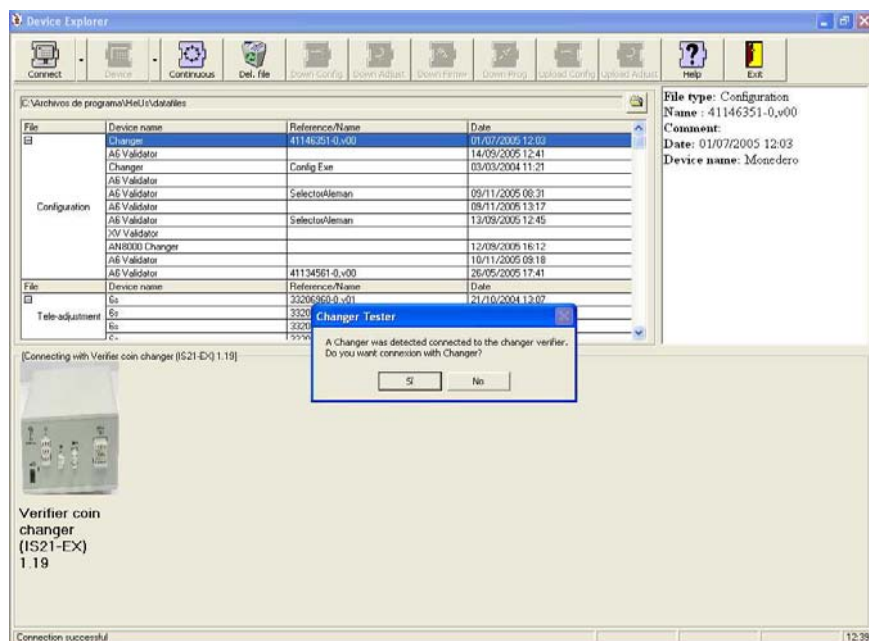


To carry out the connection it will be necessary to indicate what type of coin changer is to be powered and check its connection. If one of the three changer type buttons is selected, the Changer Verifier will power the indicated vending connection and verify if there is any device connected to its secondary port. If there is no device connected to the secondary port of the Tester, this window will reappear to be able to choose another option.

If the button “Tester” is pressed, it will check if there is any device connected to the secondary port without supplying power to any vending connection. If a device is detected on the secondary port, another window will appear that allows the selection of which of the two devices is to be connected, the Changer Tester or the device detected on the secondary port.

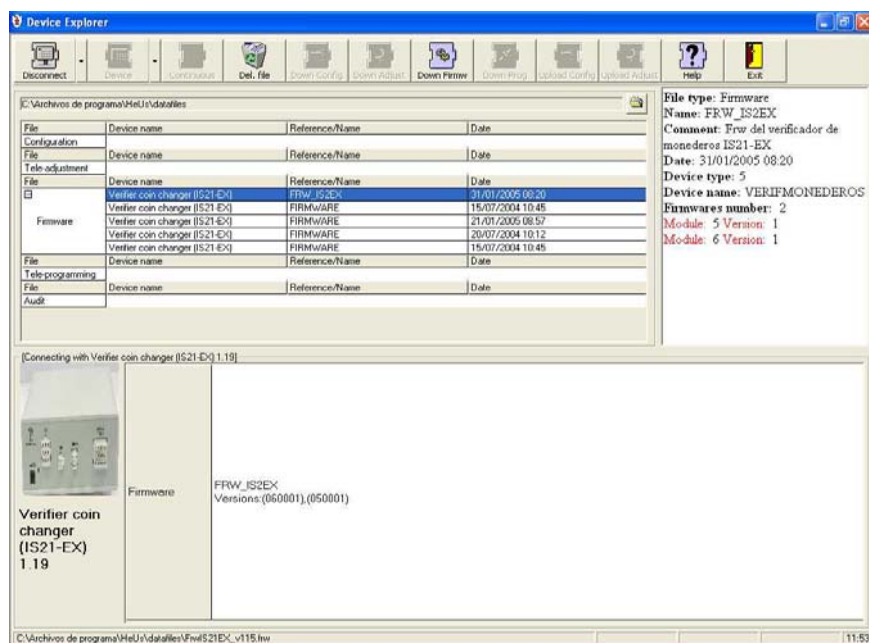


USER MANUAL OF USER TOOL



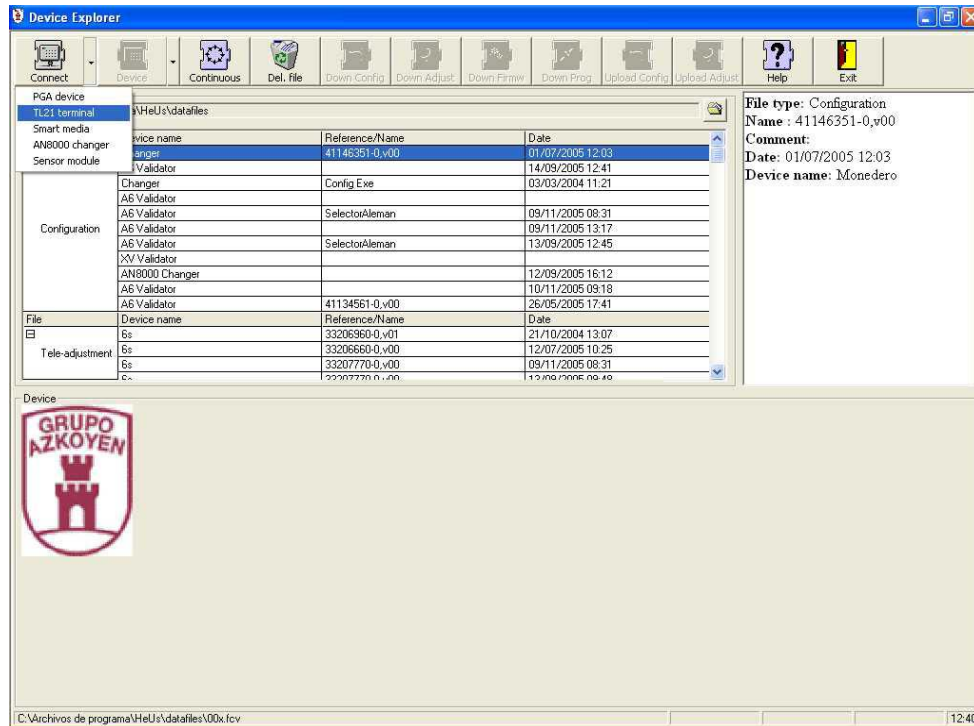
If the device on the secondary port is selected the Changer Tester will carry out the connection tasks of PC / device as that indicated for the connection of a generic device.

If no device is detected on the secondary port the Changer Tester will be connected as if it were a generic device. This way the firmware of the Changer Tester can be updated.



Connection to a TL21 terminal

The User Tool can be connected to a TL21 terminal using a owner protocol different to PGA protocol. To begin the connexion you must to select the “TL21 terminal” item on the “Connect” button menu.

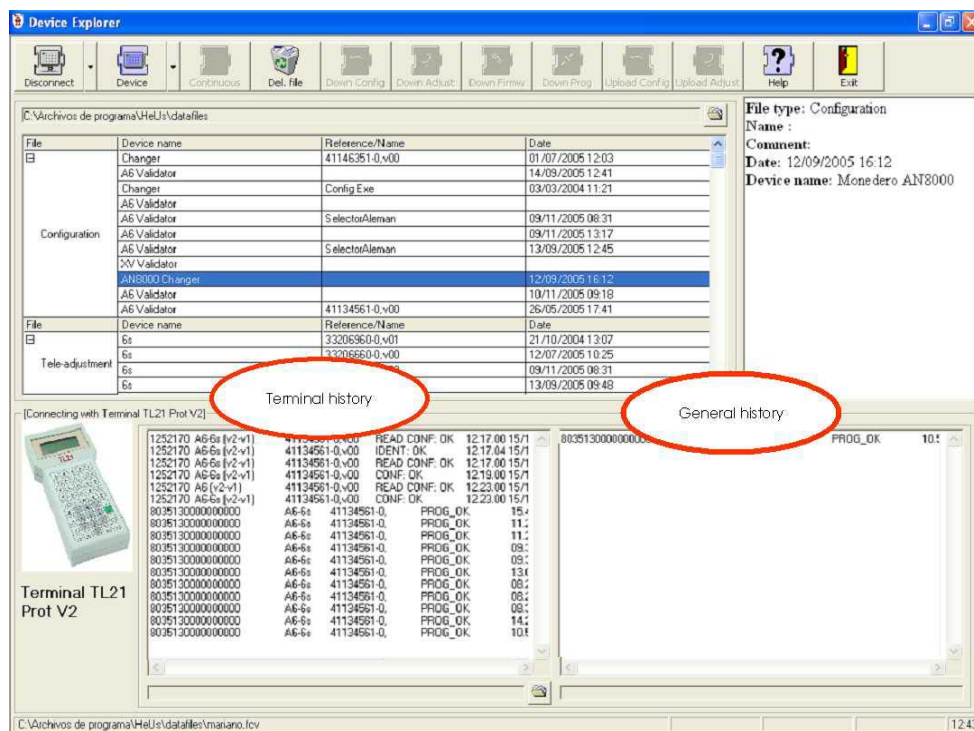


The device zone show two parts:

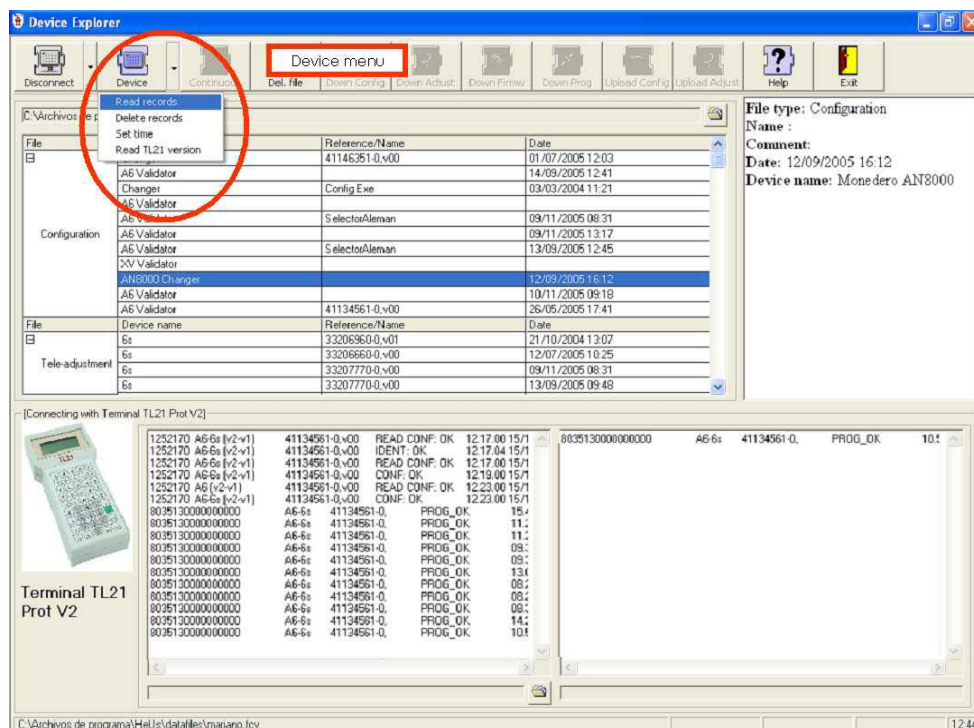
- **General history zone** : This zone show the history file for all validators.
- **Terminal history zone** : This zone show the terminal history when the terminal is connected and the history is read.



USER MANUAL OF USER TOOL



Available operations with tl21 terminal

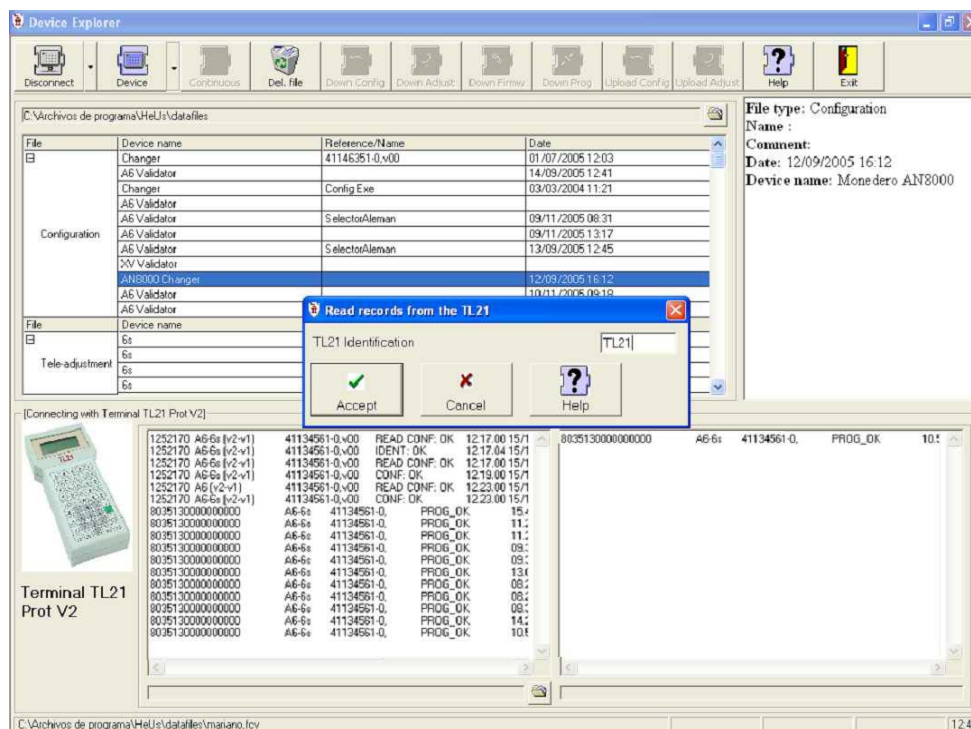


The device menu give access available operations with TL21 terminal:

- History read : With this operation is posible get the operations history from TL21 terminal to save on PC hard disk.
- History delete: This operation is enabled when the history is read and the terminal history can be deleted.
- Set time : Allow sincronize real time clock terminal with PC time.
- Terminal version reading: Show the software terminal version for application and monitor.

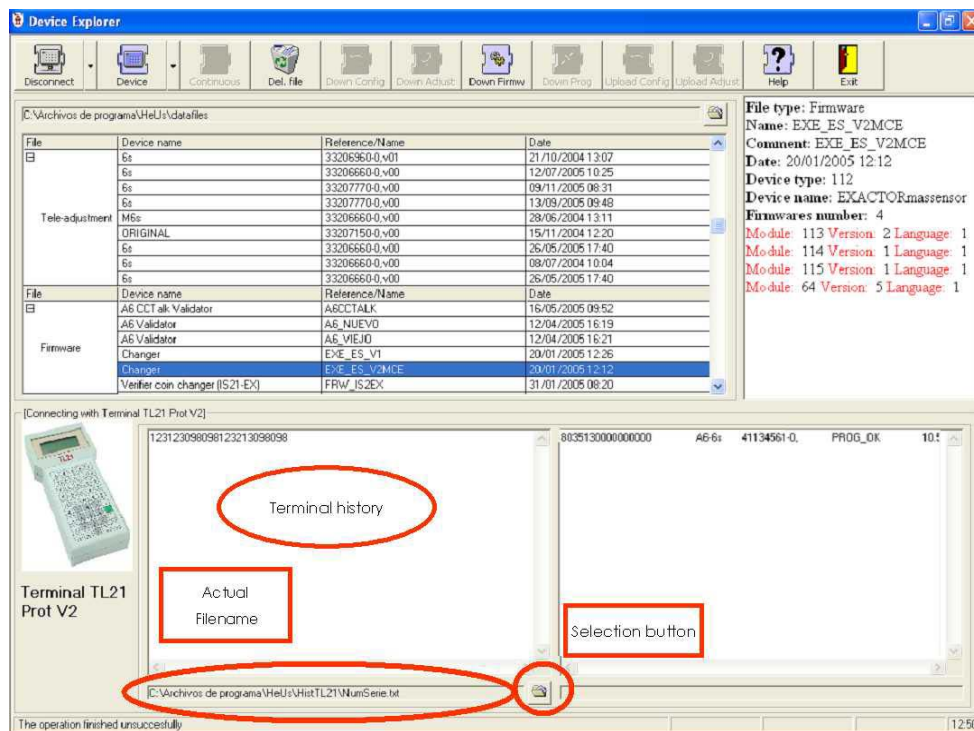
READING AND DELETING TERMINAL HISTORY

To read the terminal history, is necessary select the “Read records” item in Device Menu. The User tool will show a window to get the terminal identify.



When the history shall be read, the data shall be showed in “Terminal history zone”.

It is possible show other history files selecting the folder button. The actual file is showed at downside zone. The “Delete records” item can be used to delete permanently the terminal history.

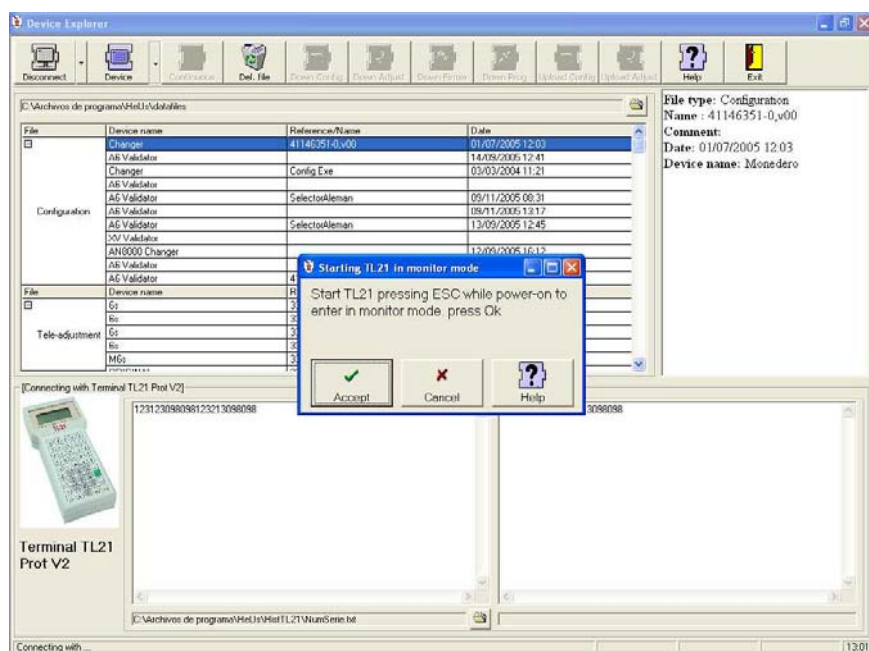


Terminal set time

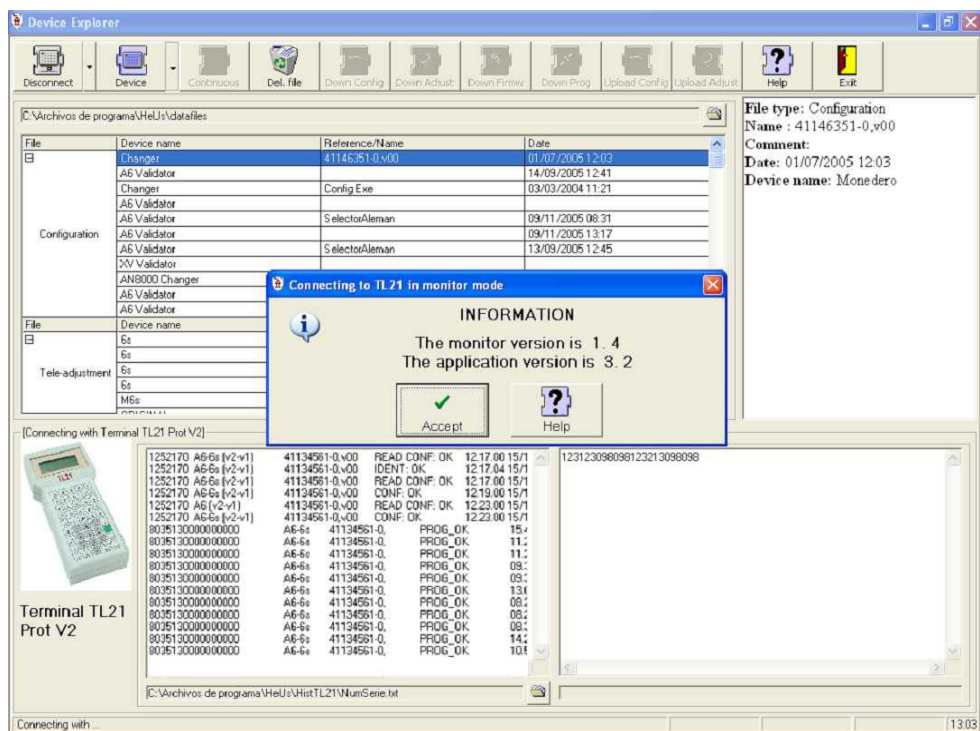
The “Set time” item allow the sincronization terminal clock with actual PC time.

READING SOFTWARE VERSION

When you select “Read TL21 version” item in device menu the User Tool will show a information window requiring the terminal connexion in monitor modus. This is complish turn on the terminal pushing ESC key.

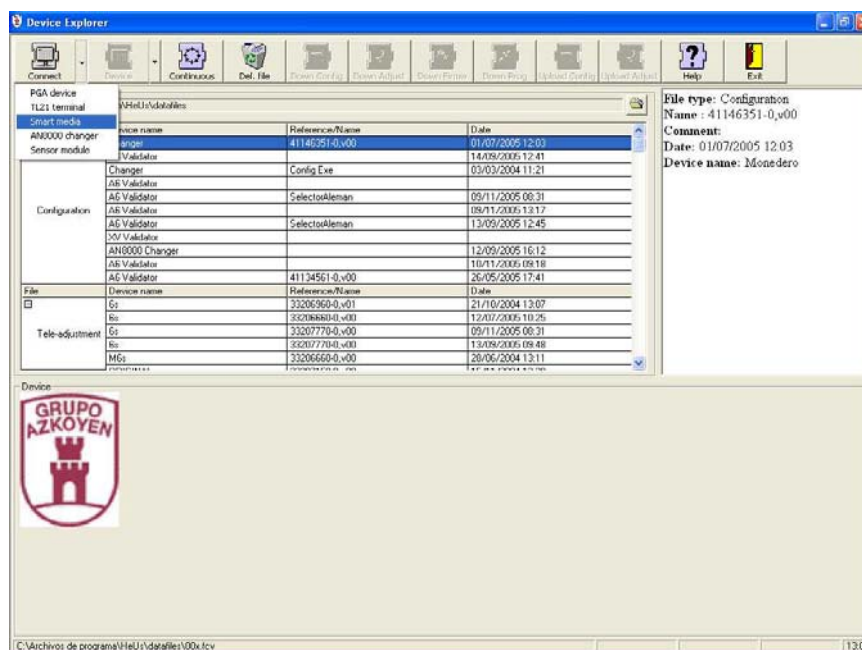


The User Tool will show a information window with the software version of TL21 terminal.

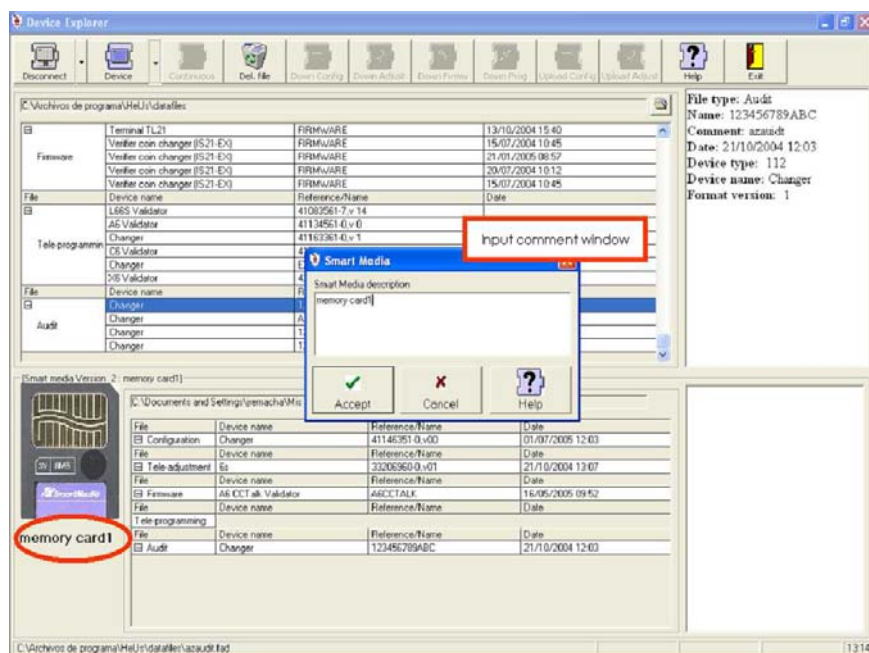


Connection to a Smart Media card

The User Tool can be connected with Smart Media handling devices. This devices simulate a disk unit on PC. The disk unit to use can be established in the User Tool configuration. The connection to the device is allowed by the “Smart media” item in “Connect” menu.



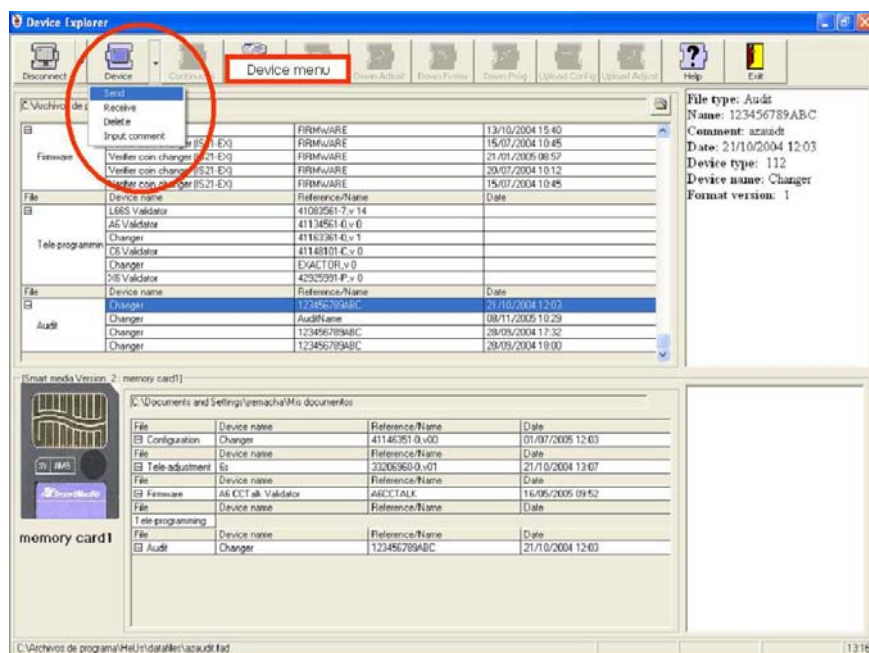
The first time, the User Tool will show a window to get the Smart Media comment. It is possible to change the comment selecting the “Input comment” item in the Device button menu.



Allowed operations

The allowed operations for this device are:

- **Send a file or Teleprogramming to Smart Media card:** Put the file grid selected item to Smart Media grid.
- **Receive a file or Teleprogramming from Smart Media card :** Get the selected Smart Media grid file from Smart Media to PC hard disk.
- **Delete a Smart Media file :** Delete the selected Smart Media file.
- **Input comment:** It is possible to change the Smart Media comment. This comment is showed by TL21 terminal and by The User Tool.



It is important to note that none of the operations performed with Smart Media are carried out until disconnection, i.e. they are not applied until the device is disconnected by pressing the disconnect button. As a result, if files are transferred from/to Smart Media, they are not really saved until disconnection.

TELEPROGRAMMING

The User Tool manage all teleprogramming necessary files when the is selected a teleprogramming item in files or Smart Media grid. It is posible to connect a Smart Media with teleprogramming files with diferents serial number that the PC have. To note, the special items grid will be showed in red.

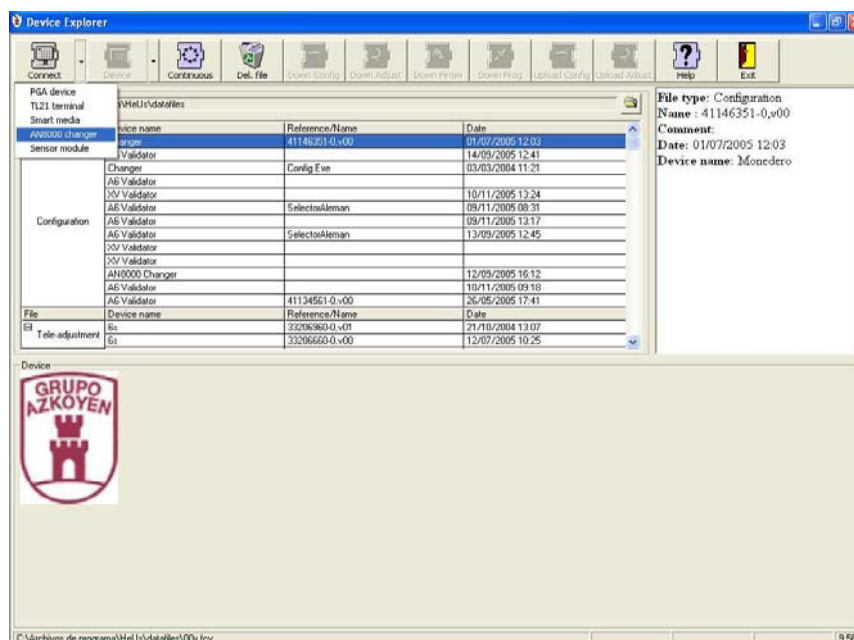
Connection to AN8000 Changer

The User Tool can be connected to an AN8000 change giver in two different ways:

- Directly, by connecting the AN8000 change-giver serial port to the PC serial port and supplying it from an external source.
- Via the Change-giver Verifier, by connecting the change-giver serial port to the relevant port on the verifier itself.

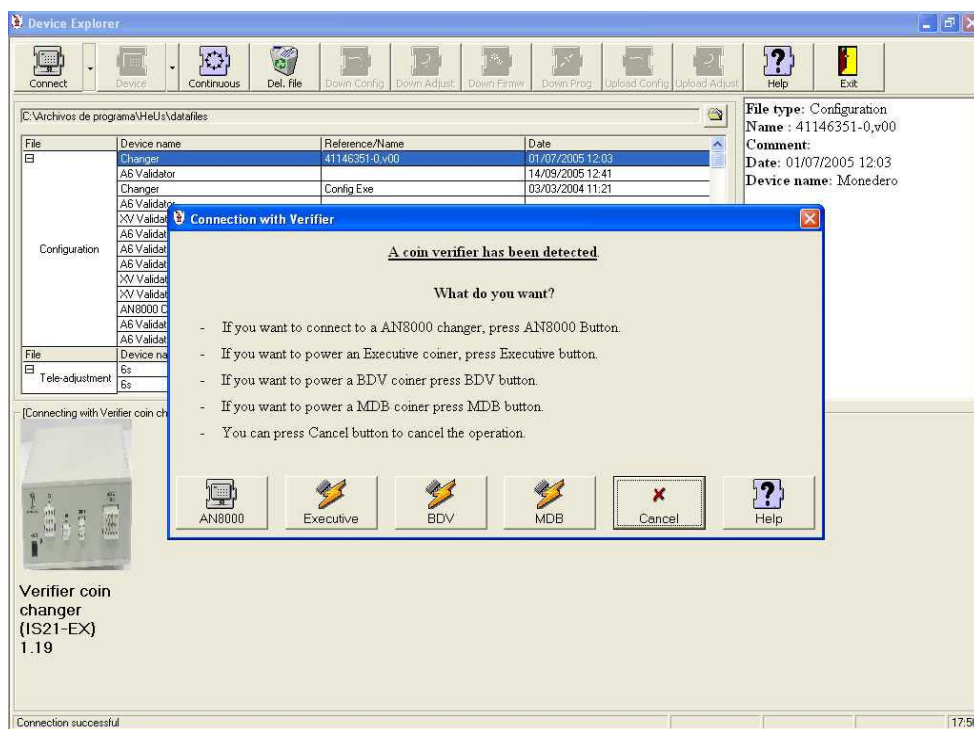
To connect directly, it is necessary to configure the PC serial port to be used to communicate with the AN8000 change giver as described in [User Tool Configuration](#).

Connection is made via "AN8000 change giver" on the "Connection" menu.



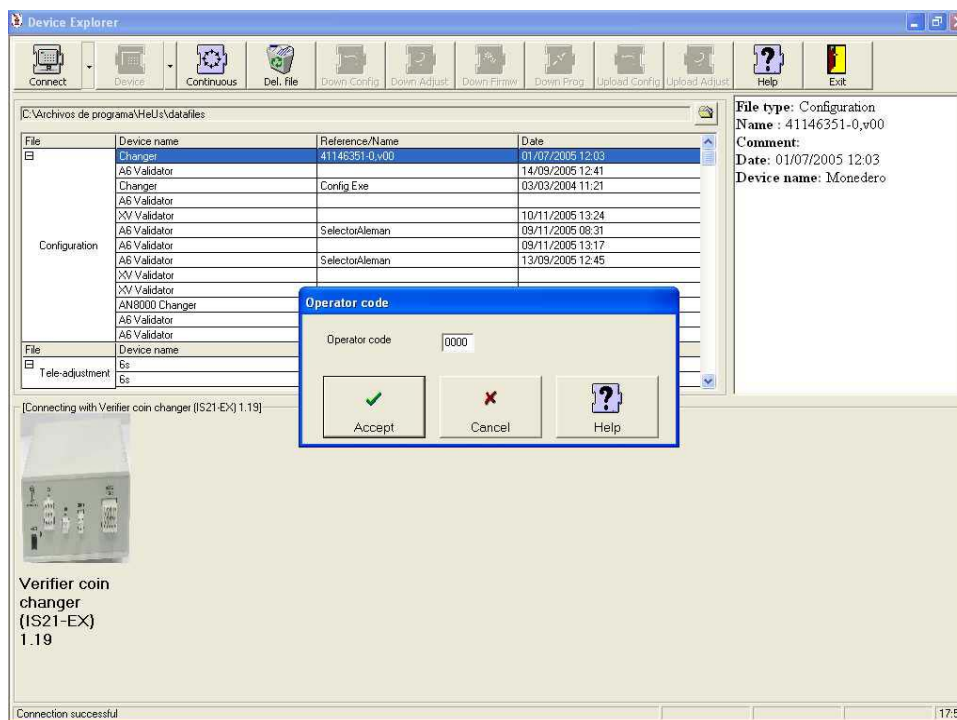
The User Tool tries to check whether a Change-giver Verifier is connected.

If a Change-giver Verifier is not detected, then direct connection is attempted. If a Verifier is detected, then a window is displayed to select to supply the change giver using the verifier or direct connection .

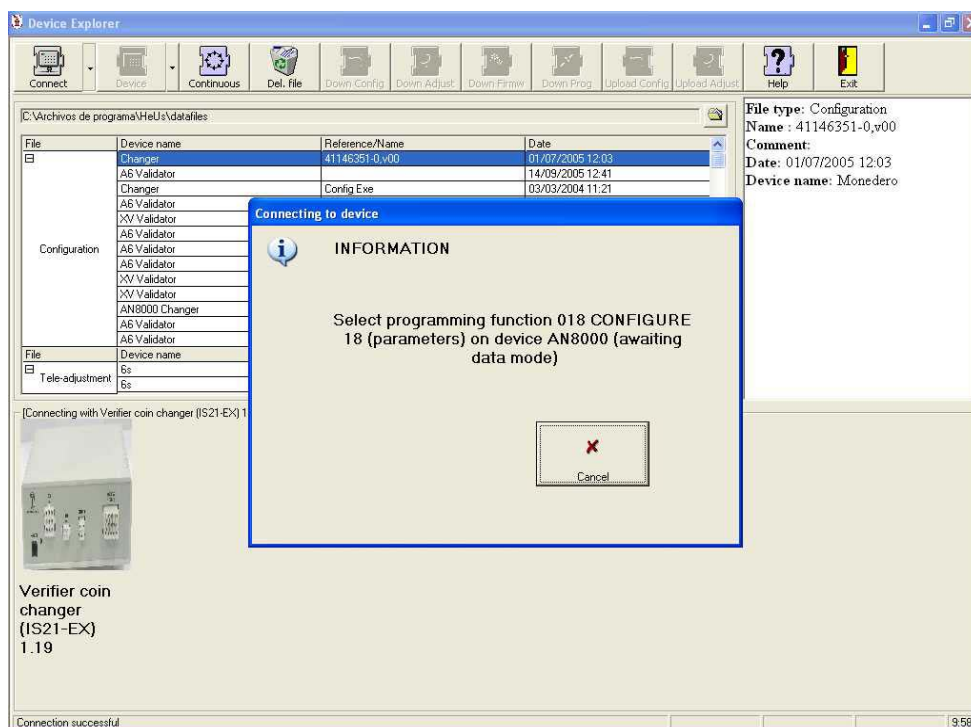


If one of the supply buttons (Executive, BDV or MDB) is pressed, the User Tool orders the Change-giver Verifier to supply the relevant vending protocol connector.

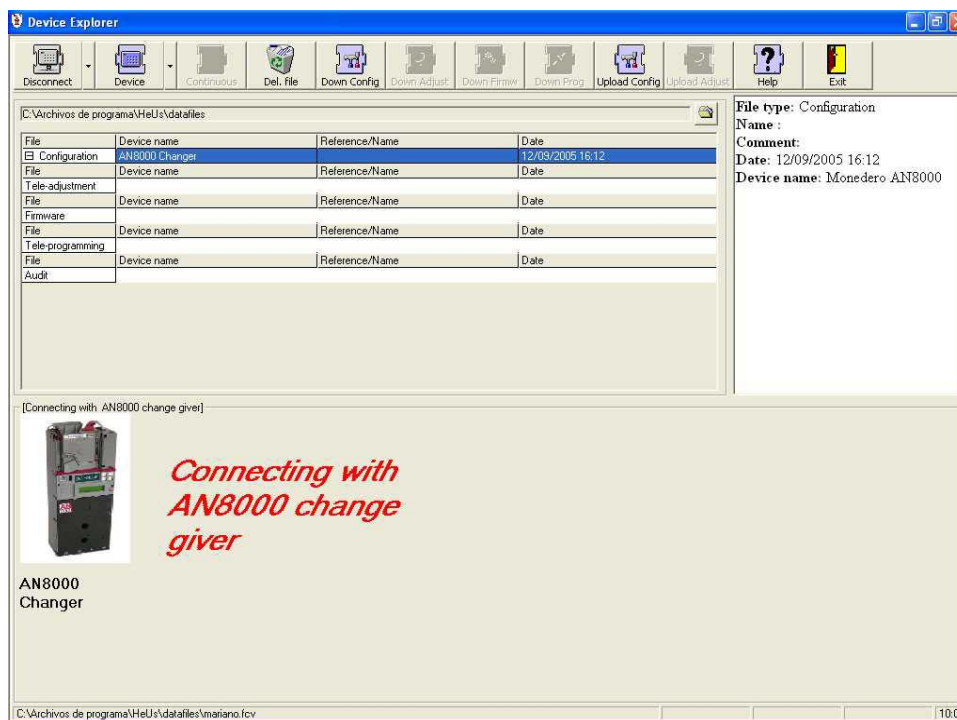
In both direct mode and with a Change-giver Verifier connection, the operator code is requested to establish communication with the AN8000 change giver.



When the information has been accepted, the User Tool proceeds to communicate with the device. To do this, it is necessary to select function 18 on the AN8000 change giver menu by pressing the red button. The User Tool waits for device connection or for the user to cancel the operation by pressing “Cancel”.



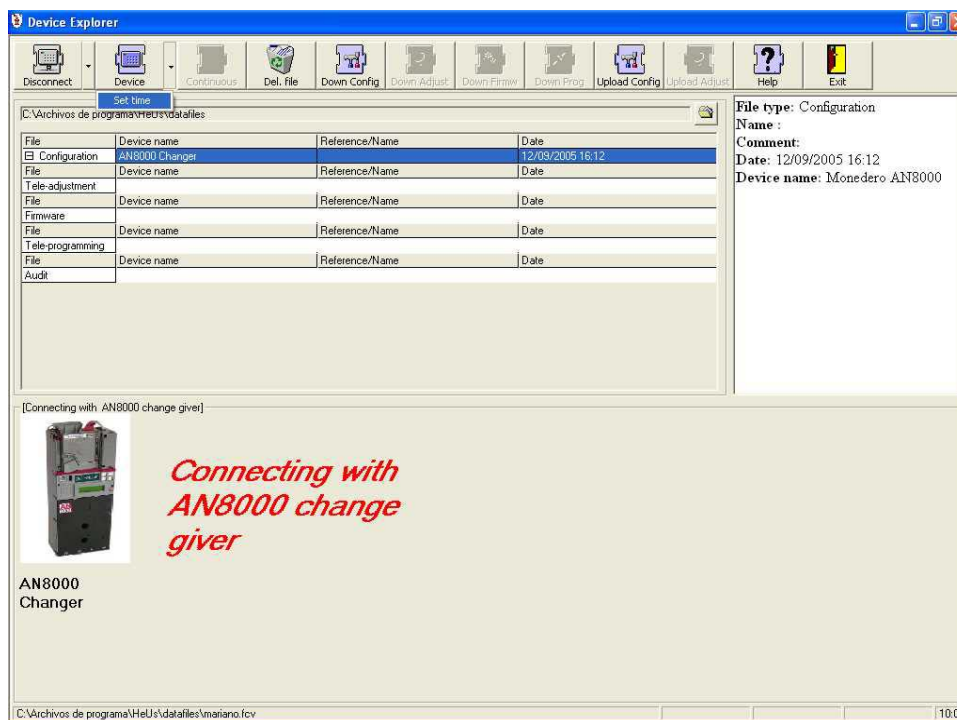
When communication has been made with the device, a message is displayed on the device panel as no data can be read.



Operations available

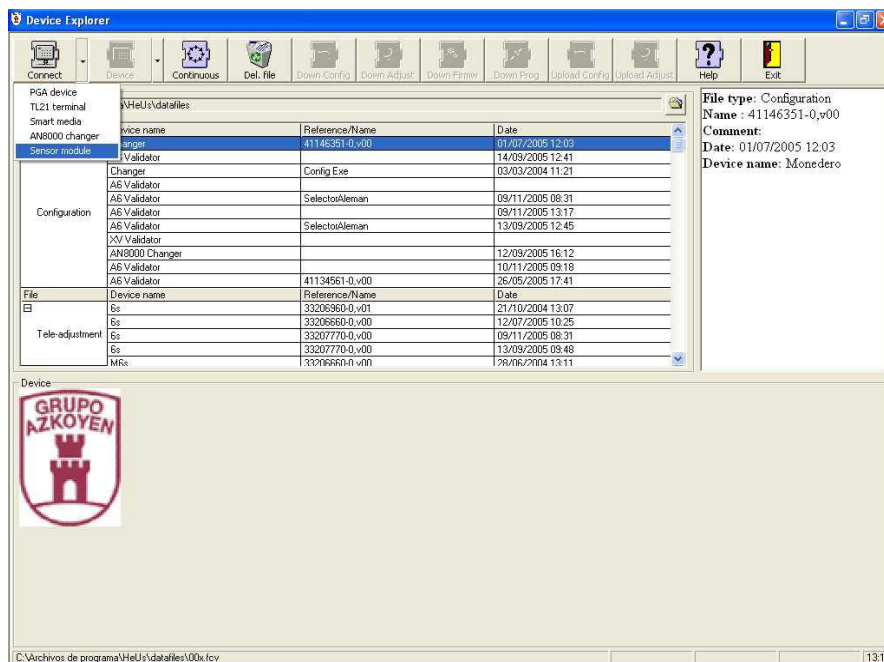
The operations available are:

- Reading of the configuration from the device to a file. This operation is the same as for PGA devices.
- Loading of the configuration from a file to the device. This operation is the same as for PGA devices.
- Writing the date on the device. A window where the date to be written in the device can be entered appears when “Set time” is selected on the device menu.



Connection to a sensor module

The User Tool can be connected to either DSP or standard sensor modules. Connection is made via "Sensor Module" on the "Connection" menu.



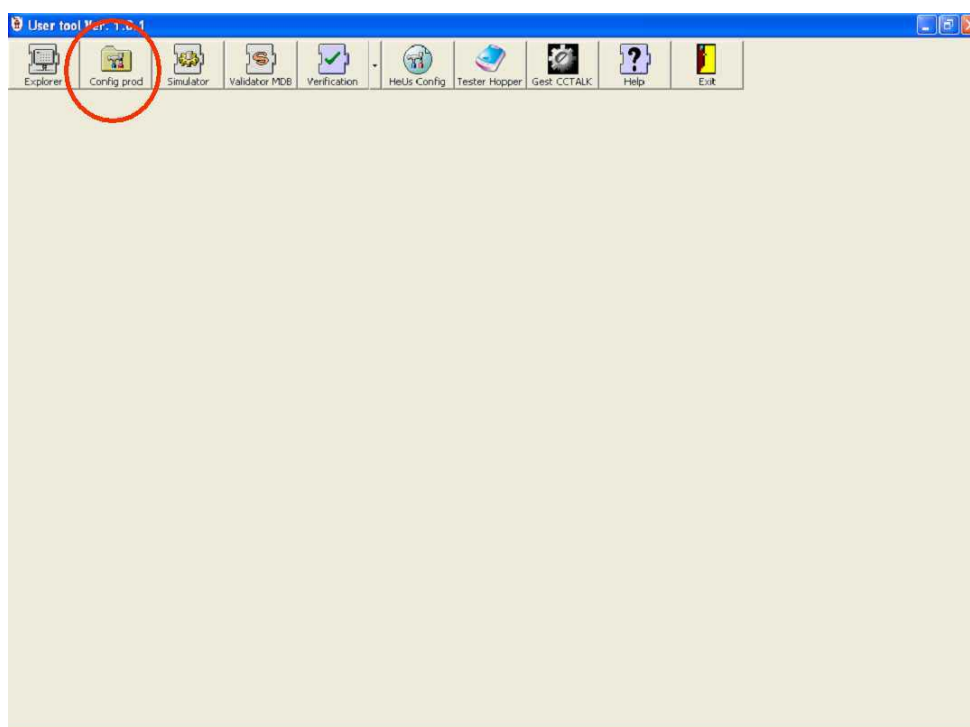
Operations available

The rest of the functions are the same as those on a PGA product.

Configuration of vending devices

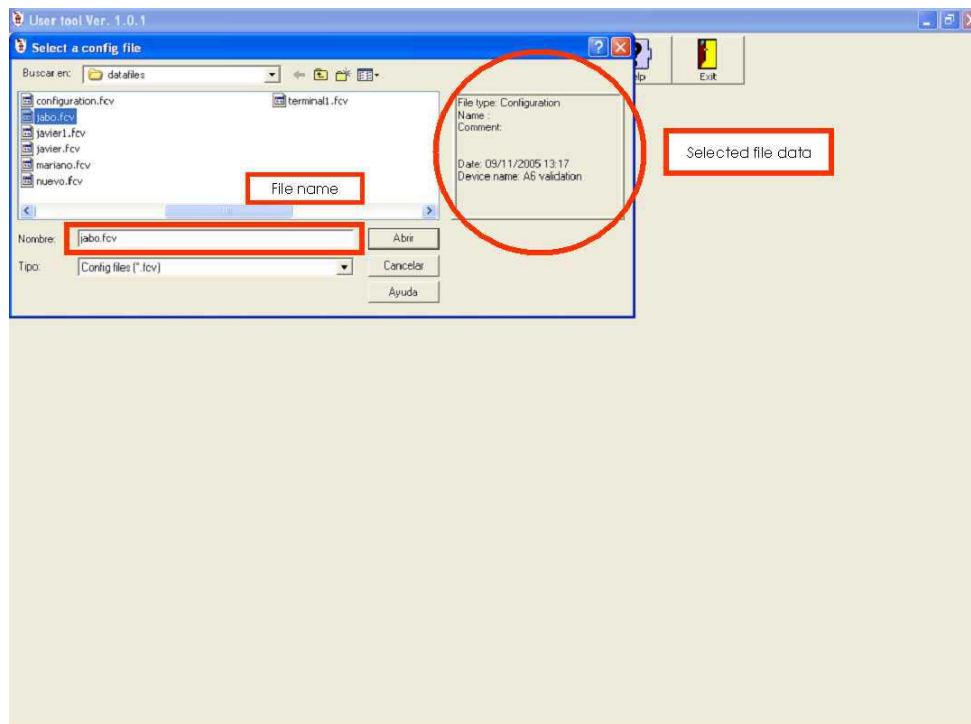
The User Tool allows the creation and editing of vending configuration files for those devices defined in the “Device Catalogue” that can be later sent as described in [Operations with a vending device](#). The configuration values and their editing are described in this catalogue. As the pool of different model devices increases, the catalogue increases.

The button “Config vending” in the initial window of the User Tool gives access to the edition of the vending device configuration.



Create or open a device configuration

Once the button “Config Vending” of the initial window of the User Tool has been pressed, a window that allows the selection of a file to edit will appear.

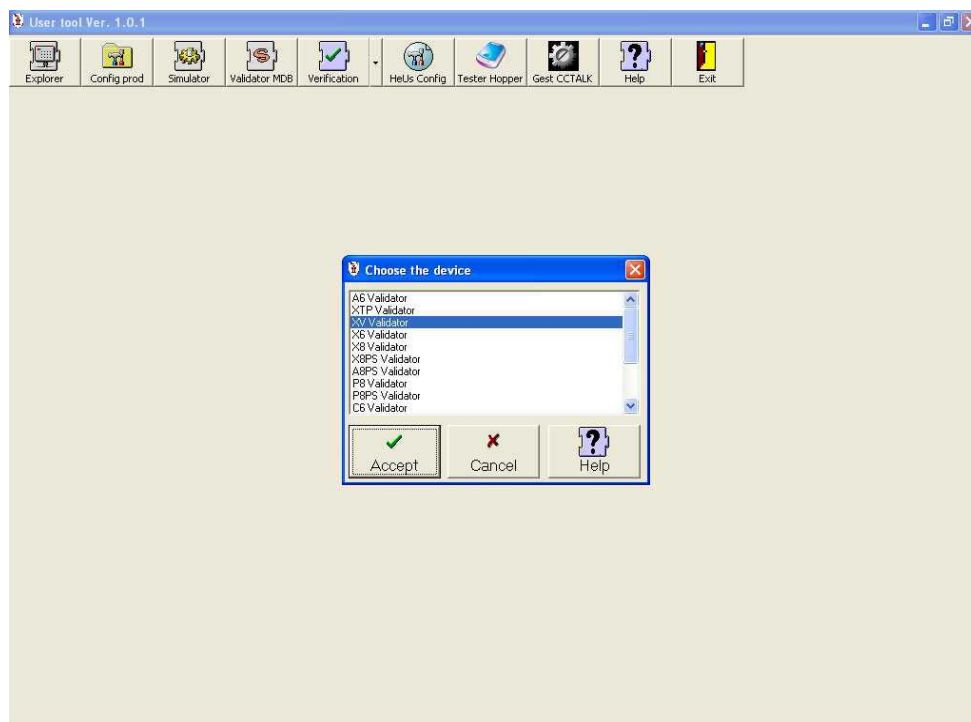


In the file list, the additional data of the selected file will appear in the right panel. If you wish to create a new file, simply write the name of the new file in the file name box.

If this happens the User Tool will show a window with the configurable devices that exist in the catalogue. If you accept the selection, it will create a file with the indicated name and the default values for the device selected and go directly to editing this file.

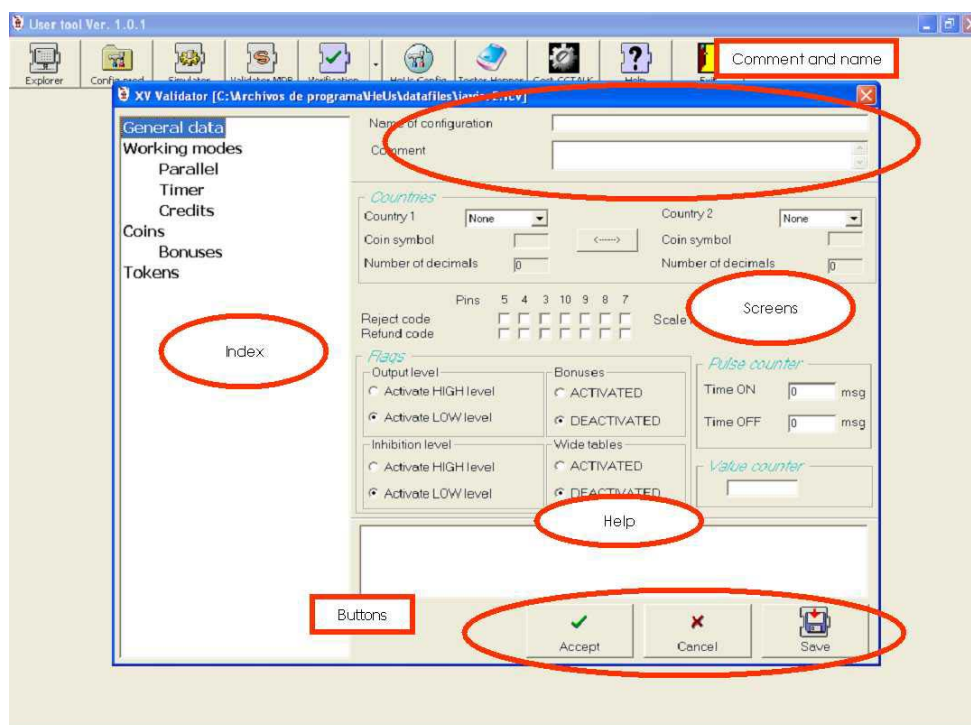


USER MANUAL OF USER TOOL



Editing a device configuration

The User Tool will show a window similar to that shown below in the figure:



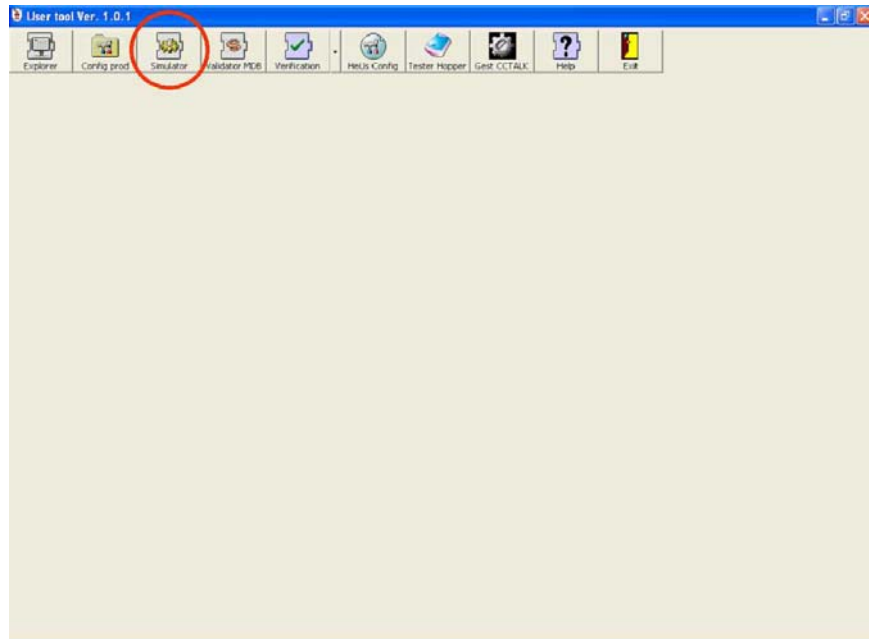
The following parts can be seen:

- **Configuration name and Comments:** Indicates and allows the edition of a comment to describe a file.
- **Index:** These items allow to navigate inside different screens.
- **Tabs of groups and subgroups:** Each set of configurable elements is organised in groups and subgroups so the elements are better organised.
- **Screen and Elements:** These are the configuration items. Depending on their values the vending device will behave differently.
- **Help:** Each element has a help file that explains the purpose of the element in that configuration.
- **Accept and Cancel buttons:** These finalise the edition of the configuration by accepting or cancelling the value of all the elements.
- **Save as Button:** This button allow to save the configuration with other file name without finalise the edition

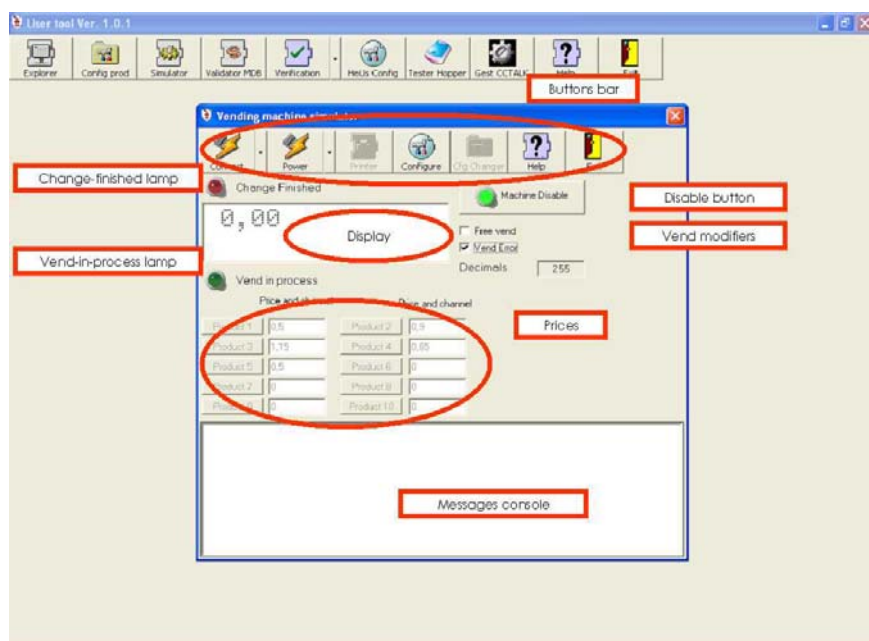
The screens and elements will depend on the device to which the configuration file is destined but the format will always be consistent.

The vending machine simulator

The User Tool, with the Changer Tester, allows you to simulate a vending machine. The button “Simulator” in the initial window of the User Tool gives access to the vending machine simulator.



The following figure shows the initial window of the vending machine simulator.



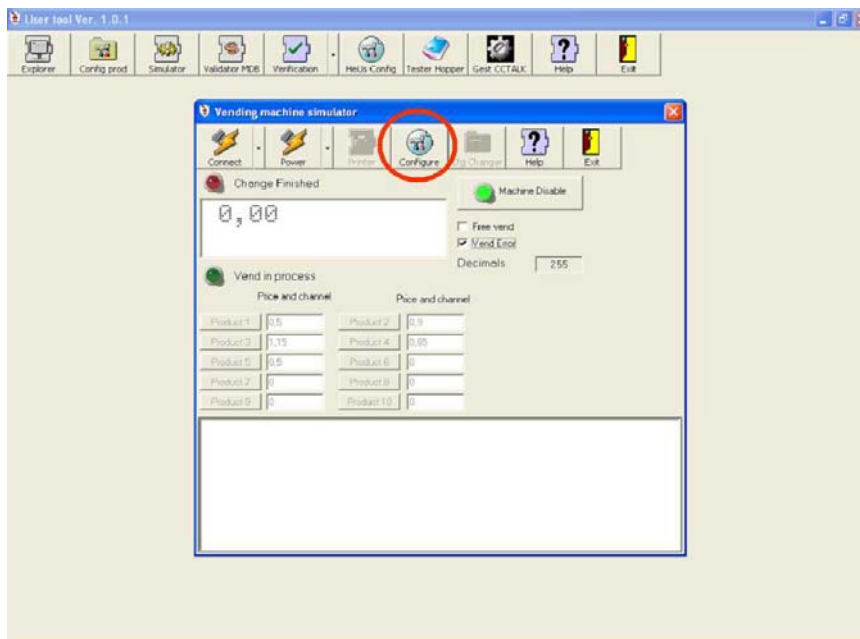


The following parts can be seen in the window:

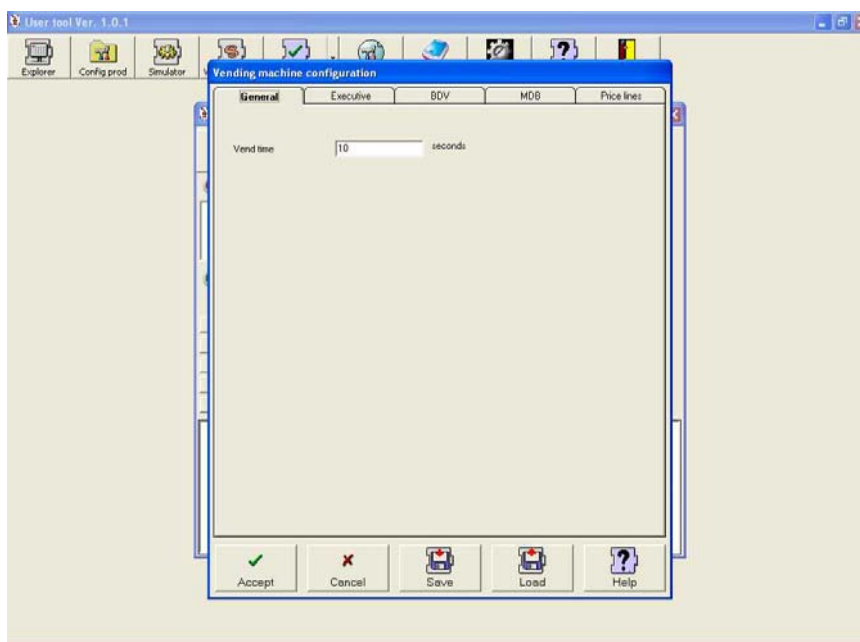
- **Button bar:** Allows access to the general functions of the vending machine simulator.
- **Display:** Simulates the display on the vending machine.
- **Out of change lamps:** They light up when the coin changer indicates that there is insufficient change.
- **Vend in progress lamp:** It flashes while making a vend.
- **Prices:** Allows you to define up to ten price lines with which you can make vends.
- **Sale type modifiers:** Allows the simulation of a free sale or erroneous sale.
- **Machine inhibition button:** It allows the simulation that the machine has inhibited all coins.
- **Message console:** It will show messages to indicate what process the vending machine simulator is undergoing.

Configuration of the vending machine

To simulate a multi-protocol machine, that is, accept coin changers of various vending protocols, the simulator needs to be configured to use any of the protocols. The “Configuration” button on the button bar gives access to the vending machine that will be simulated.



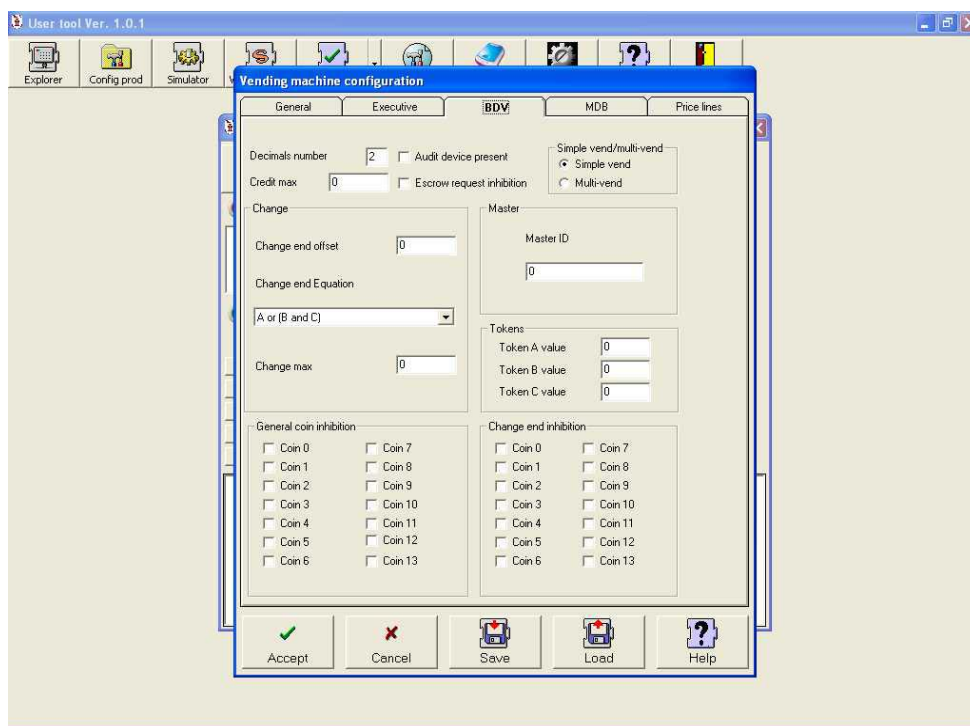
The following figure shows the configuration window for the vending machine.



Various tabs that have the configuration items for each vending protocol are presented on screen. The tab “General” contains the configuration items that do not belong to any particular protocol but to the simulated machine. The configuration items are:

- **Vend time:** The time, in seconds, that it takes for the product to fall. It will be the time the simulator waits from obtaining confirmation from the changer that it can carry out the vend and the confirmation from the machine that the vend has been made correctly or erroneously.

The executive protocol does not have any configurable configuration item so its tab is empty.

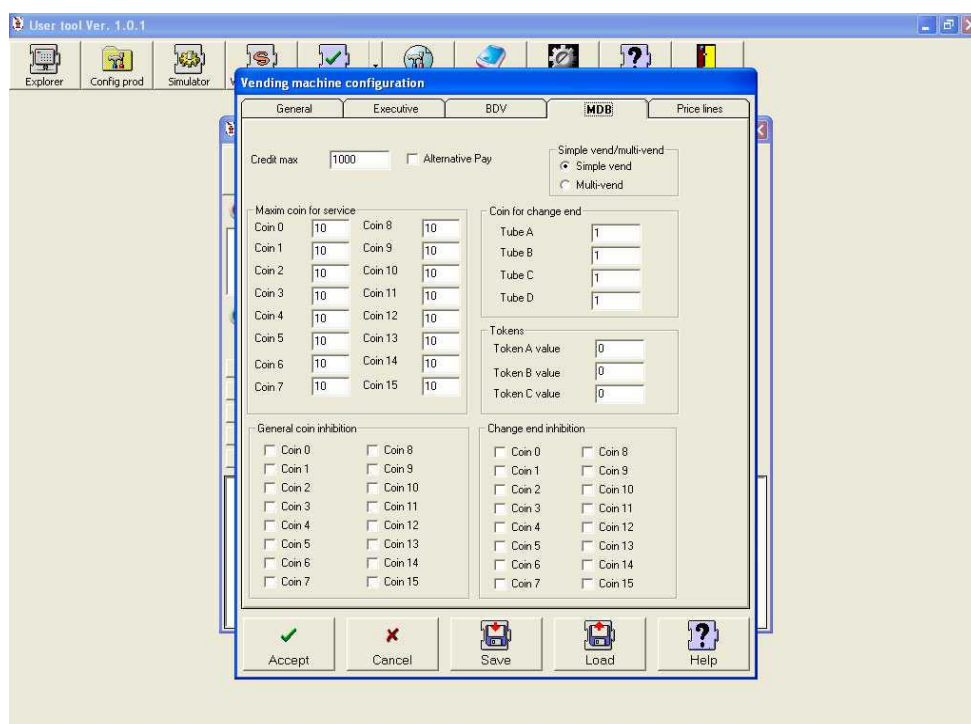


The BDV tab contains the configurable values for the BDV protocol, which are:

- **Maximum credit:** Indicates the maximum credit the changer will accept before not accepting more coins.
- **Peripheral auditor present:** Indicates that the changer implements the peripheral auditor.
- **Compulsory sale:** The changer will not return the change until a sale has been made.

- **Simple/Multi sale:** Indicates if the changer is configured for single sale (change given after each sale) or multi sale (change given when requested after finishing all sales).
- **Change:** Indicates the policy used to indicate the out of change state, selecting maximum change, the out of change equations and the out of change offset.
- **Changer:** Allows the programming of a changer ID.
- **Tokens:** Allows the programming of tokens.
- **General coin inhibition and out of change:** Allows the selection of the coin to be inhibited generally or when there is no change.

The MDB machine configuration is contained in the MDB tab.

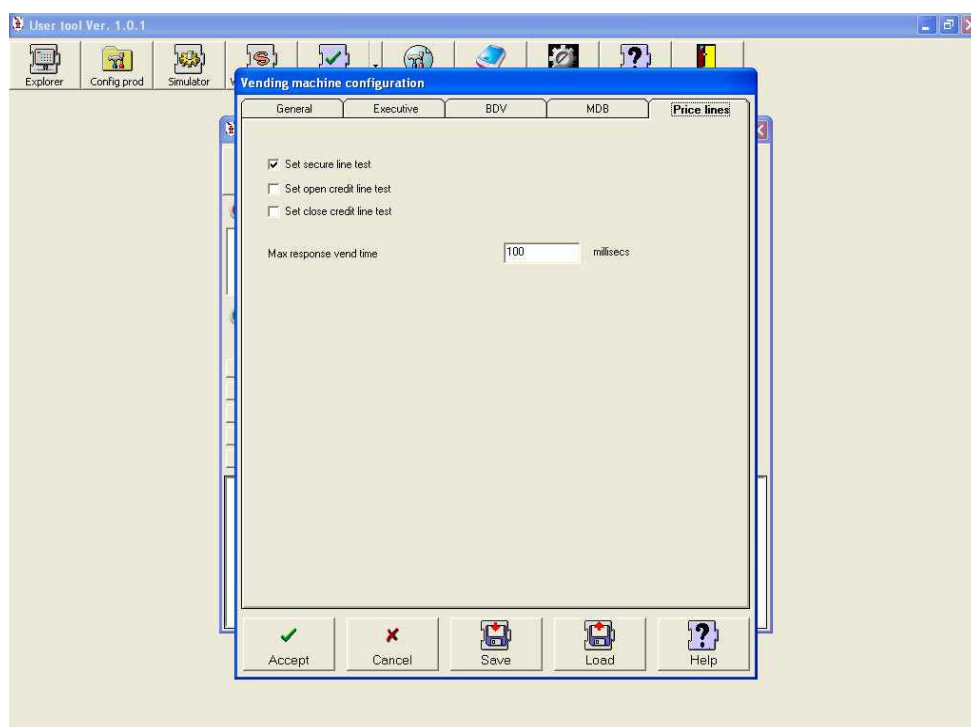


The following items are shown:

- **Maximum credit:** Indicate the maximum credit so the changer stops accepting coins.
- **Alternative payment:** If this option is activated, the command “Alternative payment” is used to give credit.
- **Simple/Multi sale:** Indicates if the changer is configured for single sale (change given after each sale) or multi sale (change given when requested after finishing all sales).

- **Number of coins to be out of change:** It presents the policy to use to indicate that the machine is out of change selecting the minimum number of coins in each tube to indicate that it is out of change.
- **Maximum number of coins per service:** Allows the programming of a maximum number of coins for each service.
- **Tokens:** Allows the programming of tokens.
- **General coin inhibition and out of change:** Allows the selection of the coin to be inhibited generally or when there is no change.

The “Price lines” tab presents the configuration of the machine in price lines.



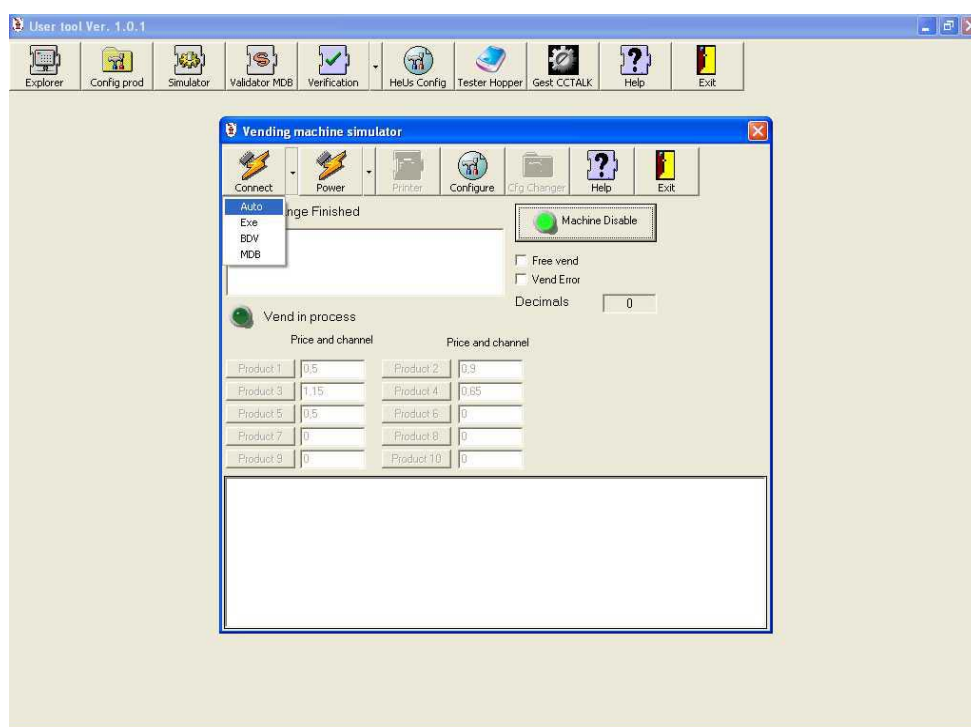
The following items are shown:

- **Activate the security line test:** If this is activated, the simulator will check that on starting a vend, the security line is activated.
- **Activate the test for the credit line normally open:** It associates the out of change lamp with the existence of credit in the changer to test the credit line normally open.
- **Activate the test for the credit line normally closed:** It associates the out of change lamp with the existence of credit in the changer to test the credit line normally closed.
- **Time the button is pressed:** Indicates the time the selection button must be pressed on requesting a vend.

Connecting the coin changer

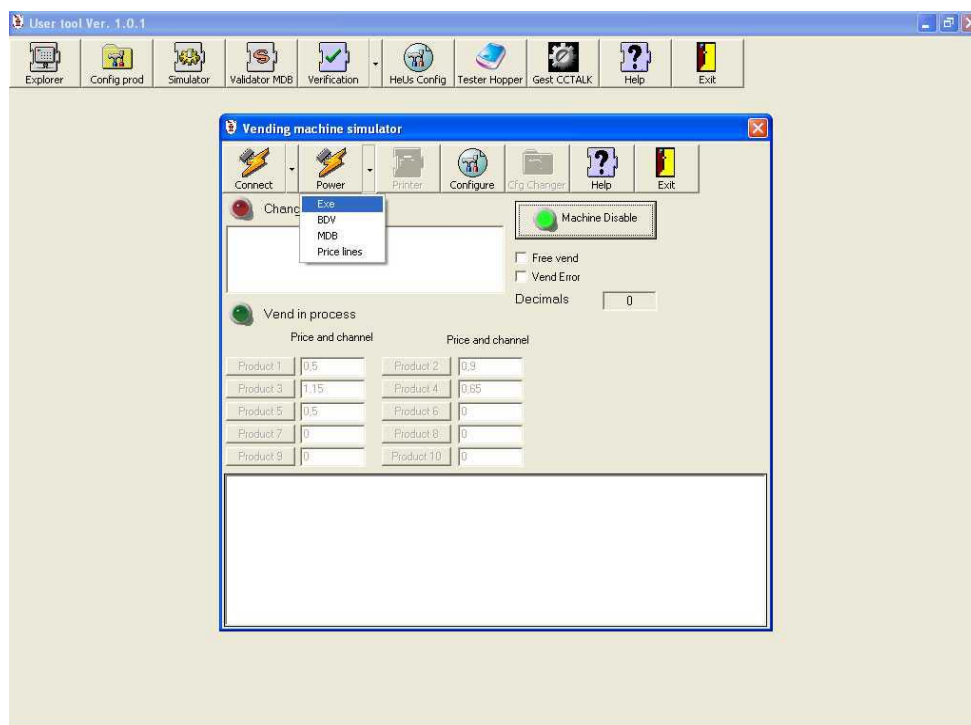
There are two ways of activating a coin changer with the simulator. Connection and power, for which there are corresponding buttons on the simulator.

The “Connection” button is used to activate the selected change giver. First the selected change giver is powered and then communication is established using the corresponding protocol. If communication is not established, power is removed and an error message is shown.



The item “Automatic” can also be selected. The simulator will try to detect the changer sequentially powering and trying communication. If communication is finally not established, power will be deactivated and an error message shown.

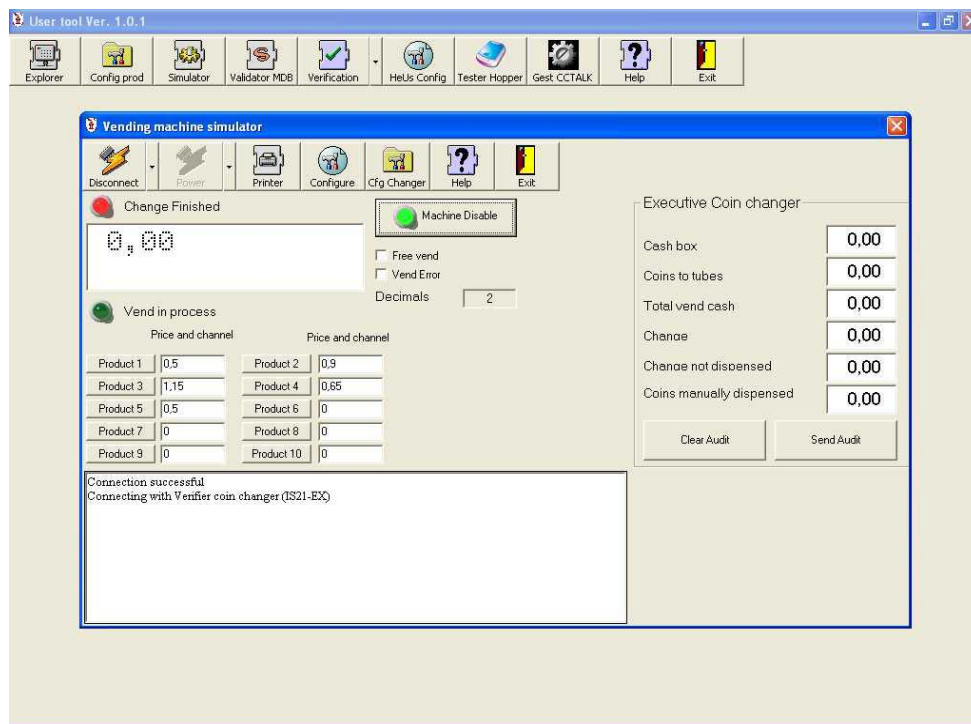
The “Power” button activates the selected vending connection and attempts communication with the selected protocol. If a connection with the indicated protocol cannot be established an error is not produced and the power is kept on, allowing the changer to be configured for the correct protocol. The simulator continues the connection process cyclically until the changer begins to communicate using the selected vending protocol.



To disconnect, press the “Off” or “Disconnect” button.

Simulation of the Executive machine

On connecting the Executive changer, the following screen is shown:



You can see how the specific information of the executive changer appears on the screen. The bookkeeping is erased each time the a connection is made but it can be modified using the buttons “Delete bookkeeping”, that erases it and “Send bookkeeping” that allows you to send the bookkeeping on screen to the changer.

Simulation of a vend

To make a vend there must be credit in the changer, edit the price in one of the channels and press the button of the corresponding product. The vend light will flash and the vend will be made. If the vend is carried out or not, there will be an explanation message of the process in the message console. This process is identical for all the types of changer.



Price request

If a vend is tried with the credit at 0, the changer will display the price for that product channel. This price will momentarily appear on the display as with a real vending machine.

Simulation of a free sale

To simulate a free sale, activate the box “Free sale” and carry out the operations for a vend. The credit will not be discounted and if it is 0, the vend will be made correctly. This process is identical for all the types of changer.

Simulation of an erroneous sale

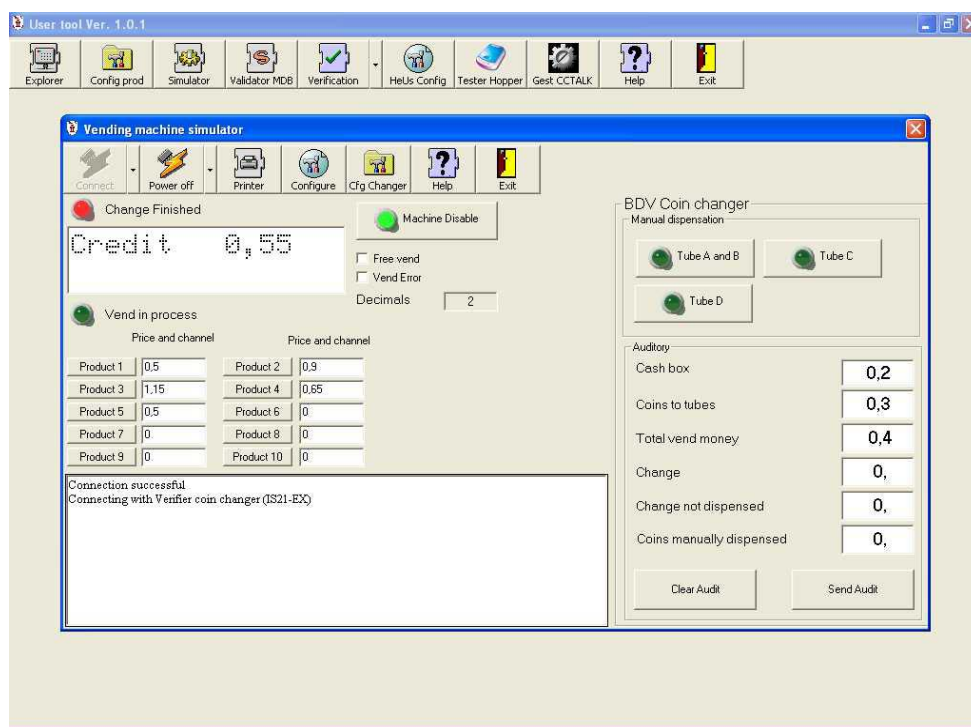
To simulate an erroneous sale, activate the box “Erroneous sale” and carry out the operations for a vend. The effect is as if the product had not been delivered and therefore is not detected and then the credit will not be discounted. This process is identical for all the types of changer.

Inhibition if the machine

Pressing the button “Machine inhibition” will indicate to the changer that the machine has sent a signal to say that it is not ready to make any sales and the changer should unconditionally reject all coins. To indicate this state, the lamp of the button will remain red.

Simulation of a BDV machine

The window that appears on connecting a BDV changer is shown in the figure below. You can see this changers specific controls and the part that corresponds to the vending machine simulator.

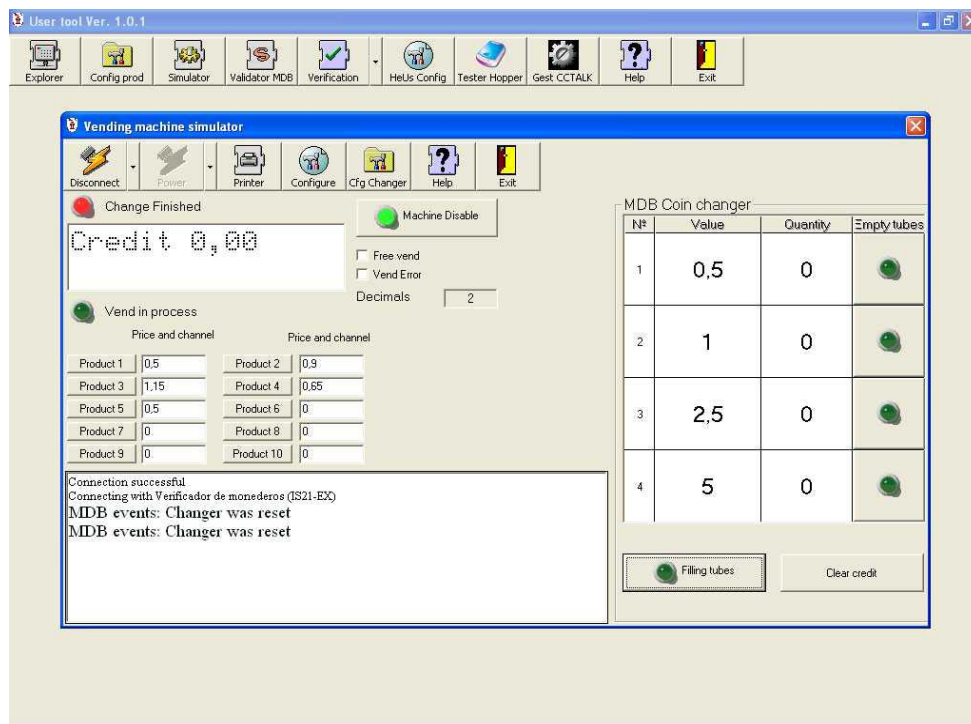


The specific functions are:

- **Deleting and sending the bookkeeping:** As with the Executive changer is restarted with each connection. You may carry out a deletion or sending of the data at will.
- **Coin extraction:** The extraction buttons allow you to extract coins from the tubes one by one. With the button “Tube A and B” one by one the coins are extracted first from tube A until it is empty, and then from tube B.

Simulation of an MDB machine

The following figure shows the window for the simulation of an MDB machine.



The specific functions of this window are:

- **Coin table:** The value of the coins that are sent to the tubes are shown, the present amount and their corresponding button for emptying the tube of coins. On pressing this button the changer will start to empty all the corresponding coins.
- **Filling the tubes:** On pressing the button for the first time it will start the tube filling process. The lamp associated with the tube filling button will start to flash red. In this state the changer will accept the coins but not count them as credit. To finalise the process, press the tube filling button again.
- **Delete credit:** On pressing this button, the credit will be deleted.

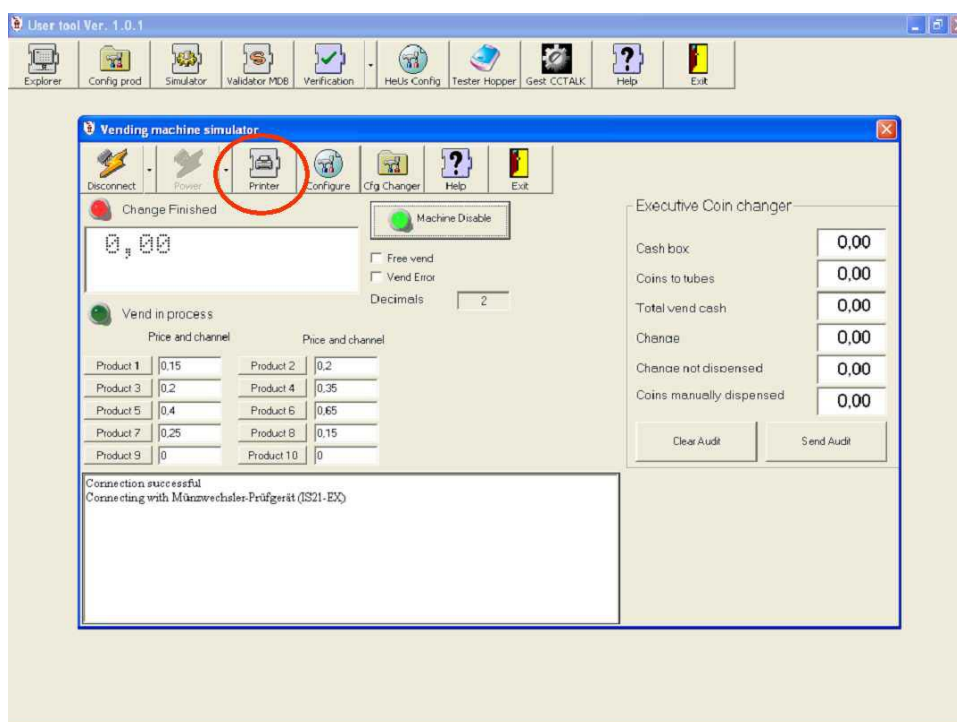


Simulation of a Price Line machine

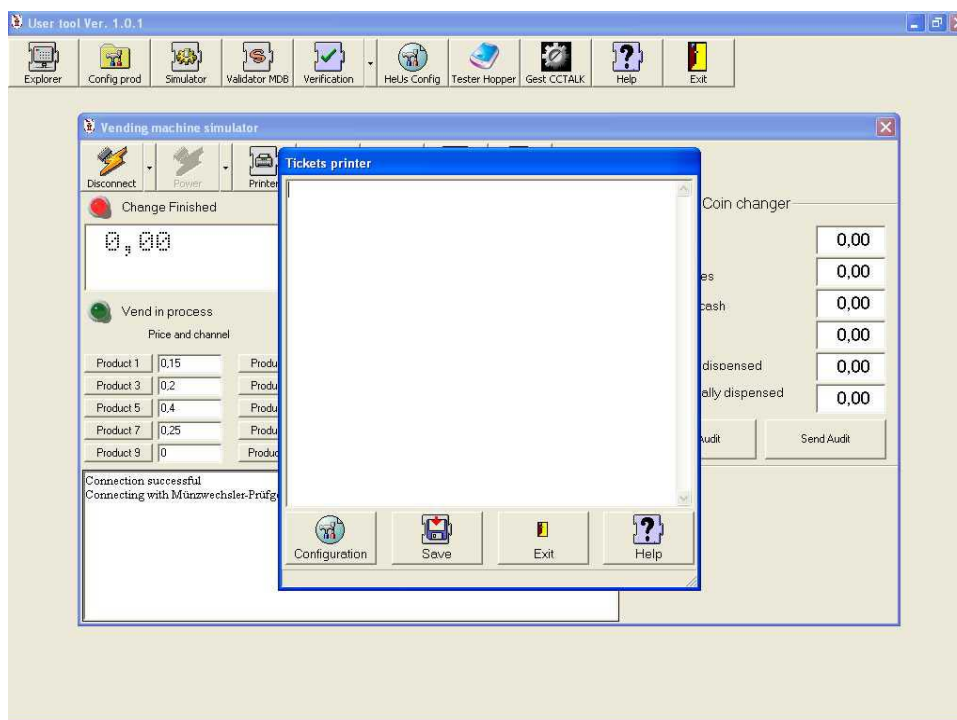
There are no specific functions for the price line machine as it does not have a communication protocol. Due to this fact, the price line changers cannot be connected only powered by pressing the button “Power”.

Tickets printer simulator

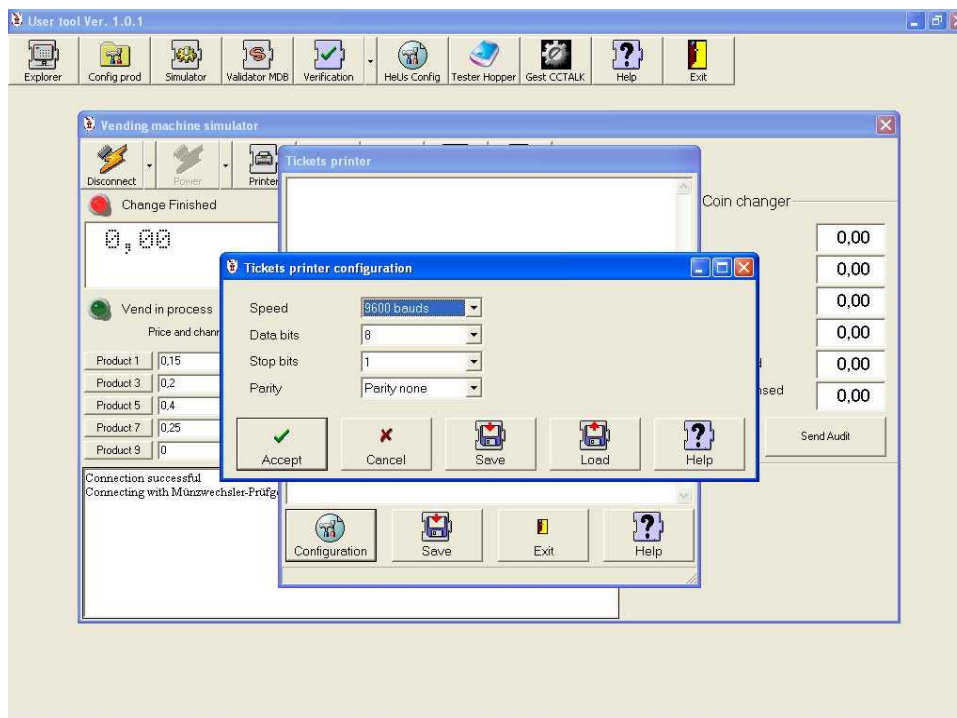
A simulation of a tickets printer for Ampasa change givers can be performed from the Vending Machine Simulator. The change-giver serial communications channel must be connected to the relevant port on the Change-giver Verifier in the same way as with connection to the [Device Explorer](#). The tickets printer simulator is accessed by pressing the “Printer” button on the Vending Machine Simulator.



The User Tool orders the Change-giver Verifier to prepare a connection without protocol with the change giver via the serial port and displays a window in which the tickets printer simulator awaits a text via the serial port.



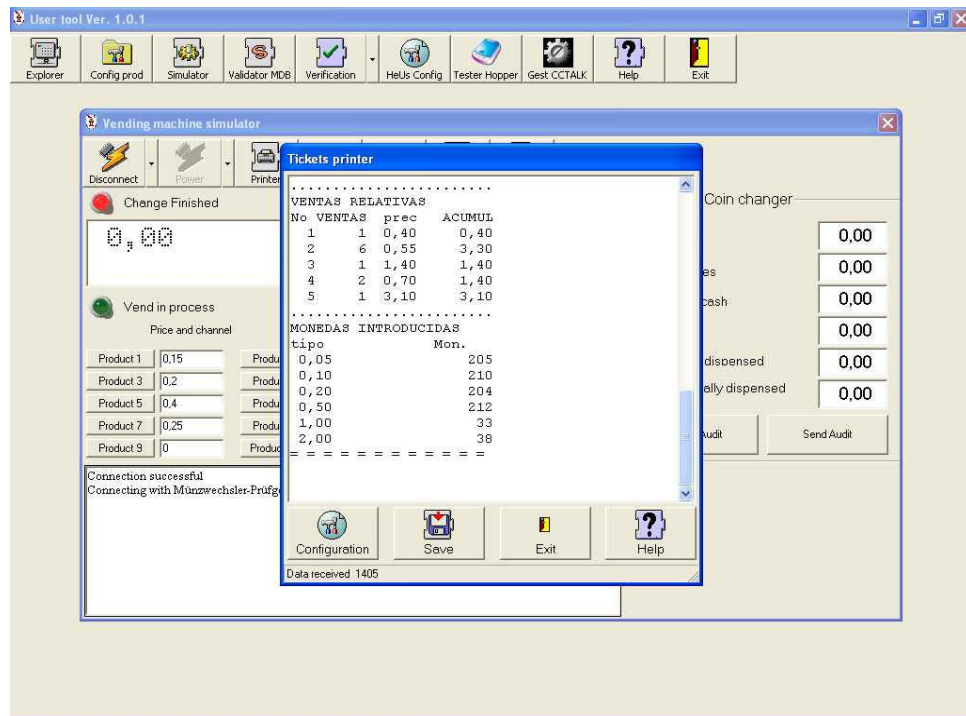
The connection parameters can be modified by pressing the Configuration button on the tickets printer simulator window.





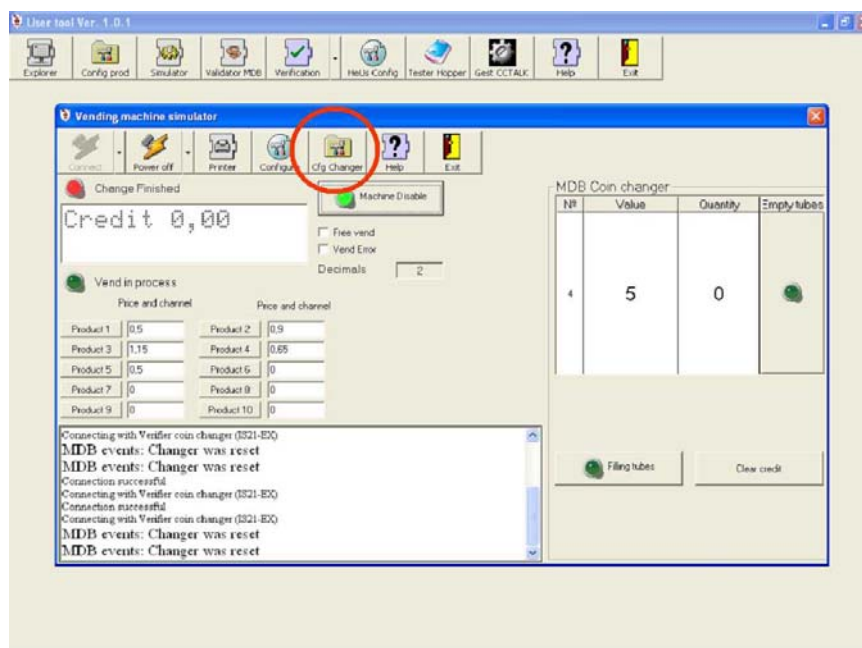
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It is then necessary to prepare the changer to send the ticket text via its own programming menu. The text appears in the tickets printer simulator window automatically.



Coin changer configuration from simulator.

If the coin changer implements PGA protocol, can be connected to Changer tester PGA port to configuring the coin changer inside Simulator

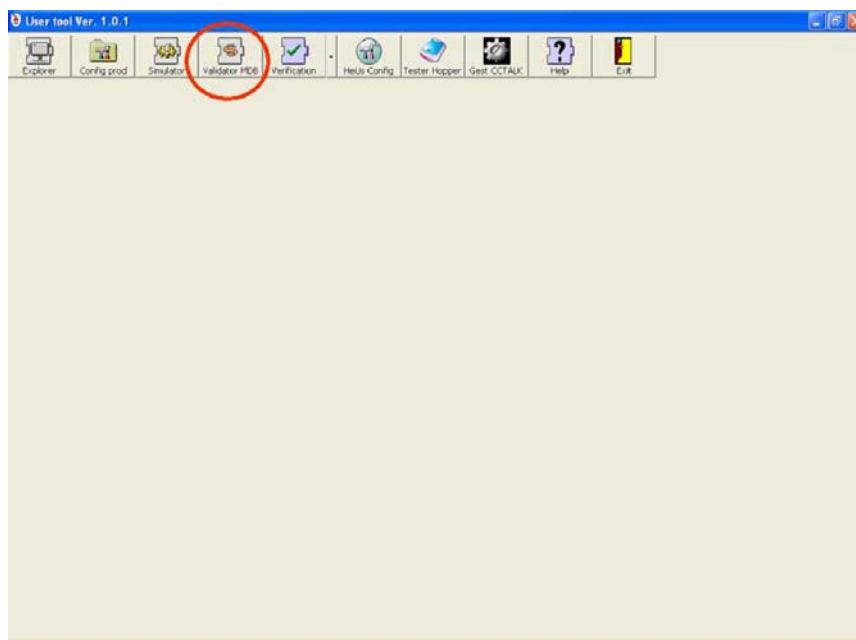


The User Tool get coin changer configuration by PGA protocol and show the configuration edit window. For more information consulting [Editing device configuration](#).

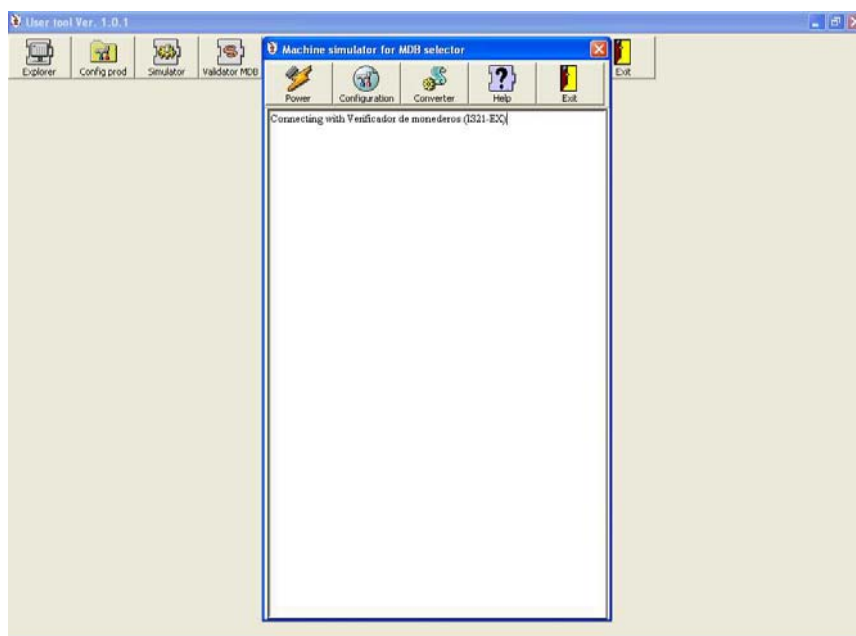
It is possible to save the device configuration in a file using “Save as” button. If the button “Accept” is pressed, the configuration is sended to the coin changer.

Machine simulator for MDB validators

To verify MDB validators, the User Tool have a machine simulator using Change Tester. It is possible to configure the validator and know the MDB events. The “Validator MDB” button give the functionality.



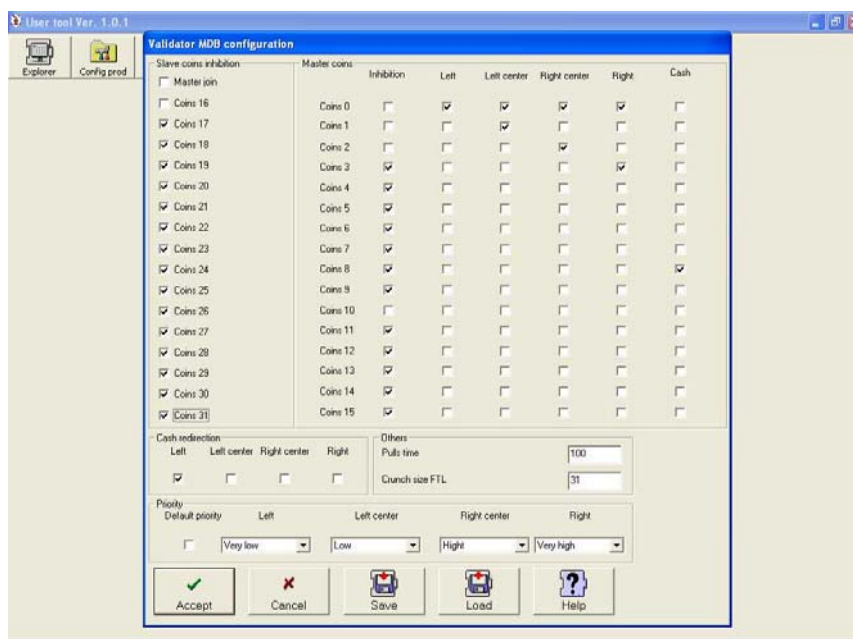
The User Tool will connect with Changer Tester and will show next window.



The main window show the allowed operations:

- **Configuration:** Allow to edit the configuration to send to MDB validator.
- **Power:** It order to Changer Tester to power MDB port and turn on the MDB validator. The MDB communication begin.

Configuration



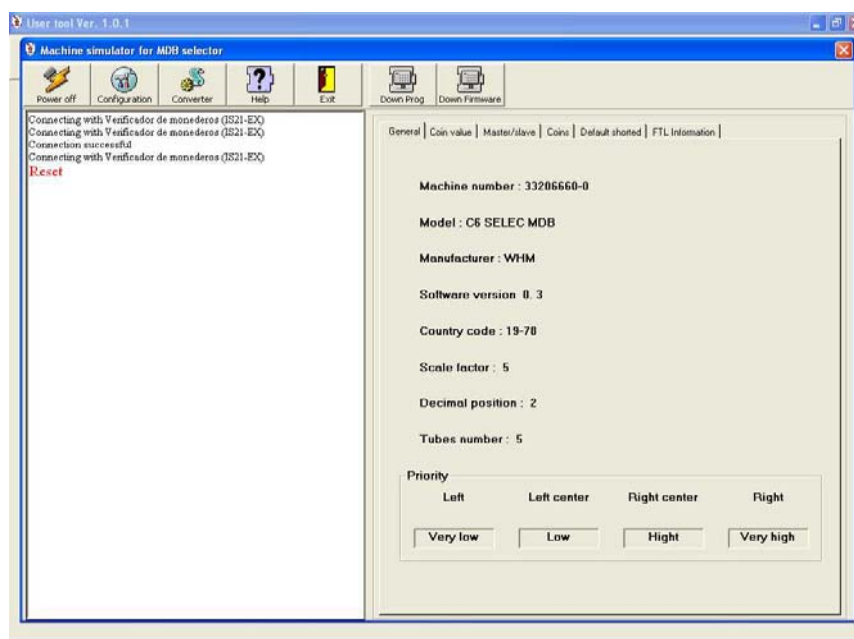
The window show the configuration items to send to MDB validator. Using “Save” button it is possible to save the configuration on PC hard disk for loading later with the “Load” button. Pushing “Accept” buttons, the configuration will be send to MDB validator.

Power

When the “Power” button is pushed, the Changer Tester turn on the MDB validator, get the validator information and wait MDB events. The validator information will be showed in tabs and the MDB events will be showed at events console. In all time it is possible reconfigure the MDB validator using “Configuration” button.

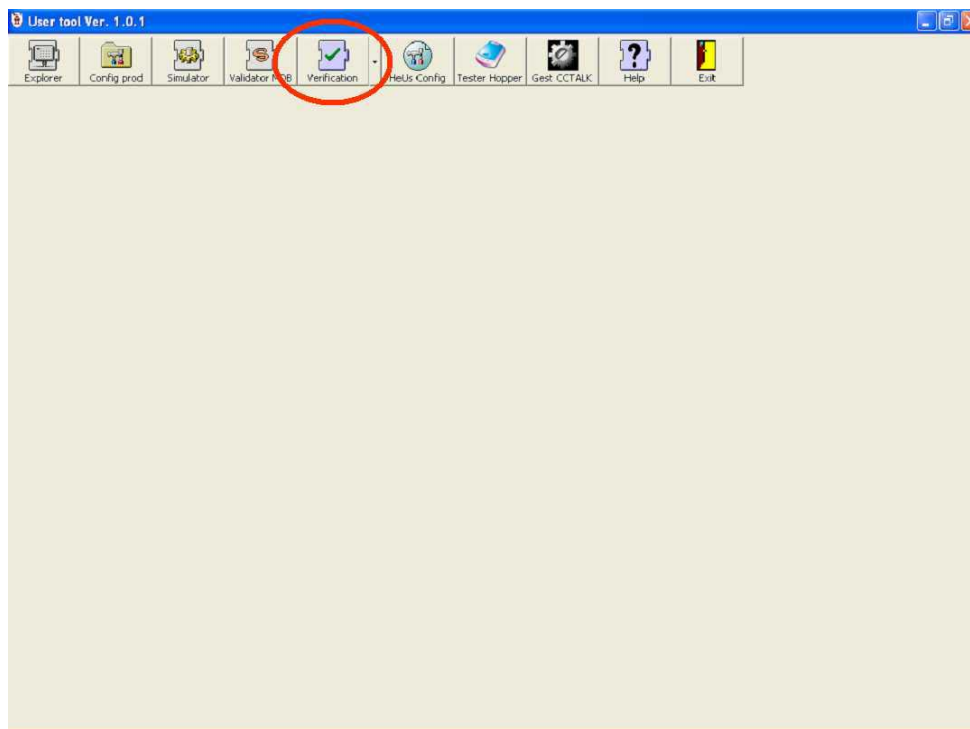


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Available tests

Together with the Coin Changer Tester the User Tool is capable of carrying out diverse tests on the devices that implement the PGA protocol. The menu button "Test" that appears in the initial window of the User Tool gives access to the different tests.

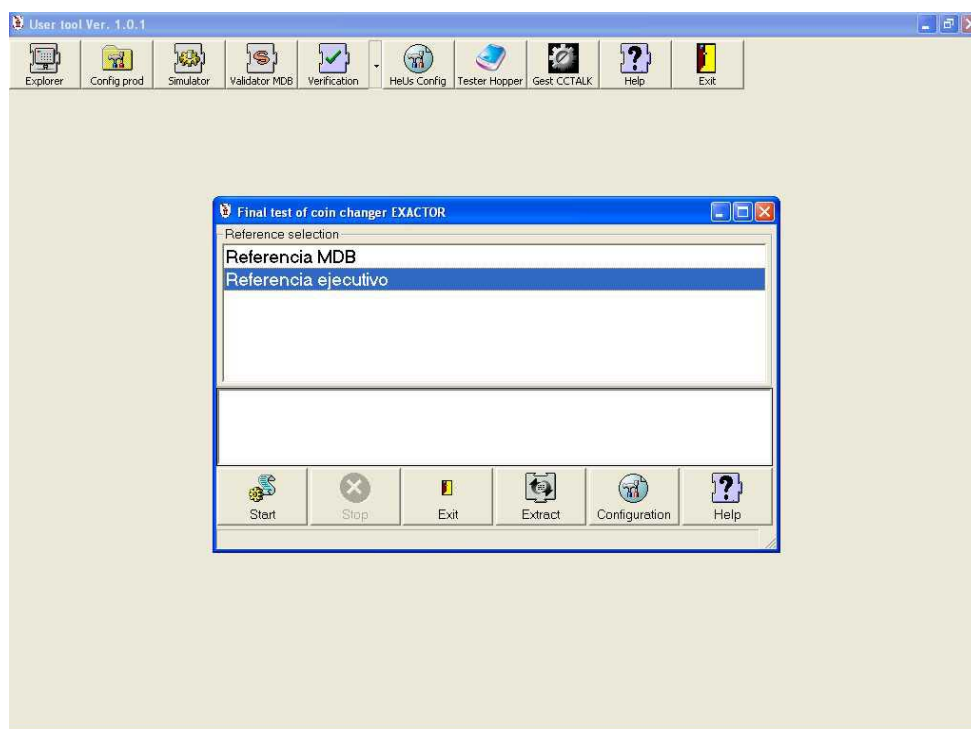


Final Exactor Coin Changer test

The final test of the Exactor changers is a set of sequential tests that allow you to identify if any components on the changer are defective.

This test is done with the help of a Coin changer tester or without. If the changer tester is not available it will not be possible to do some of the tests, as explained further.

The initial window of the Exactor coin changer final test is shown in the figure below. There is a window that you can select which area to test.



The "Configuration" button allows you to modify the way the final test is done, activating or deactivating the different tests, as will be seen further on. The area to test should be selected from the reference list. Once you have selected the reference, press the "Start" button to start the test with the chosen configuration. It is important to indicate that the changer should start at rest and that there should be no coins in the tubes, that is, the changer should be empty to start the test. The different instructions and error messages will appear in the message console.

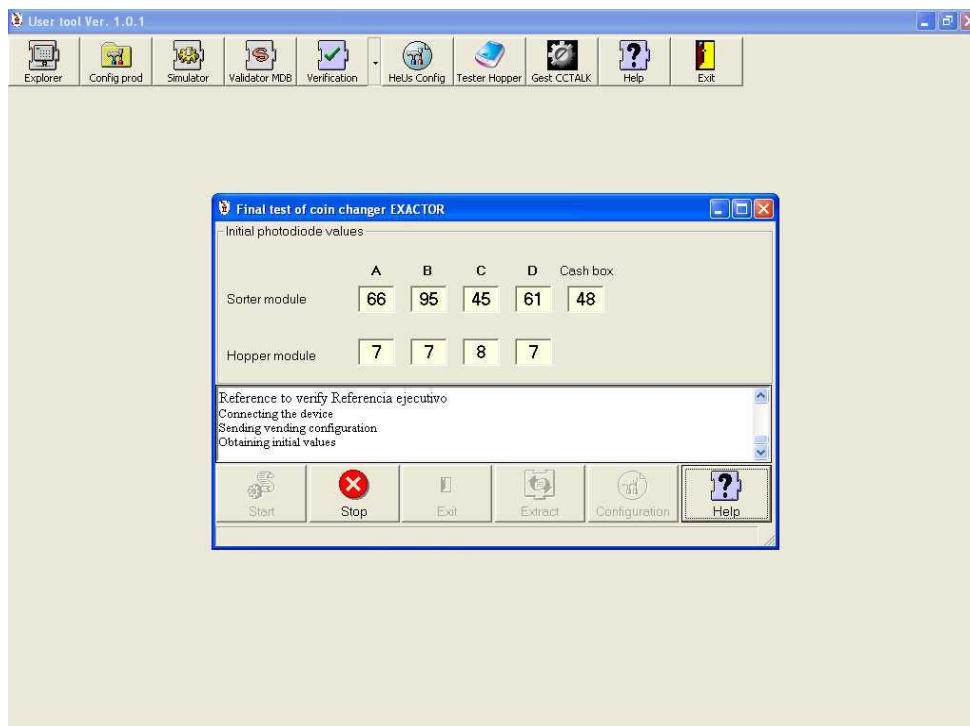
In the first phase a connection is made to check that the device is connected to the User Tool. It will check that the devices are correct. For example, if a Coin changer tester is not necessary for the test it will check that the Coin Changer is an Exactor or that there is an Exactor connected to the secondary port of the Coin changer tester. If, on the other hand, a Coin changer tester is necessary for the configured tests, the User Tool will

check that it is a Coin Changer with a Coin Changer connected to its secondary port. All these checks are carried out automatically, advising if there are any anomalies.

After the connection phase the configured tests begin.

Indicial photocell test

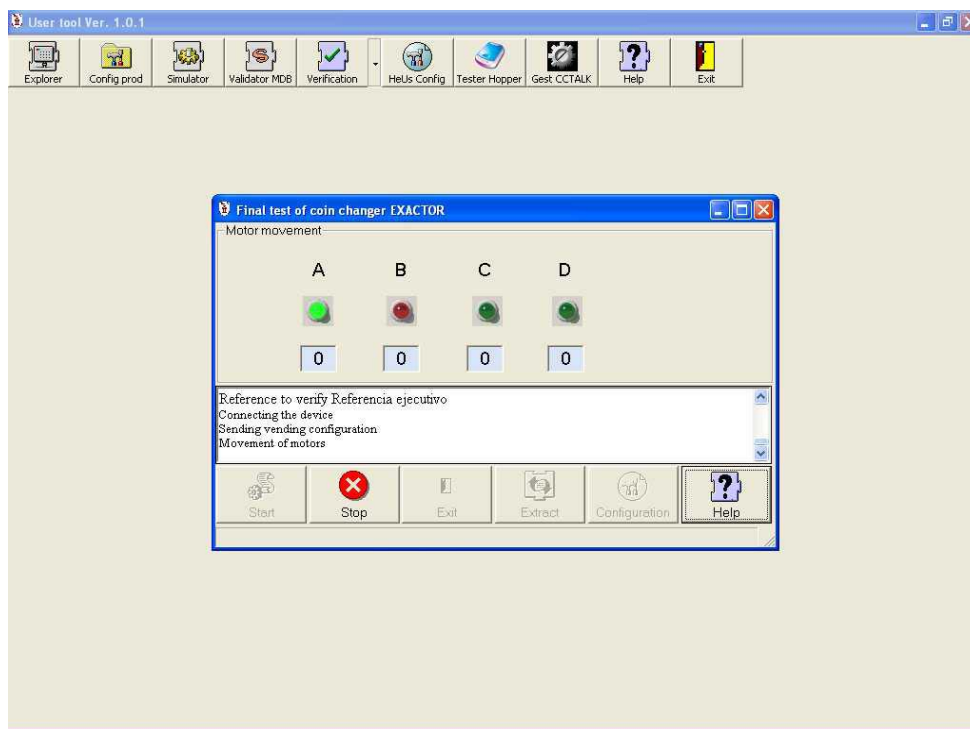
It will test the photocells in the sorter module and the change giver module, reading the measurements and programming the values.



The values will be kept in a photocell record file that has been configured for this purpose.

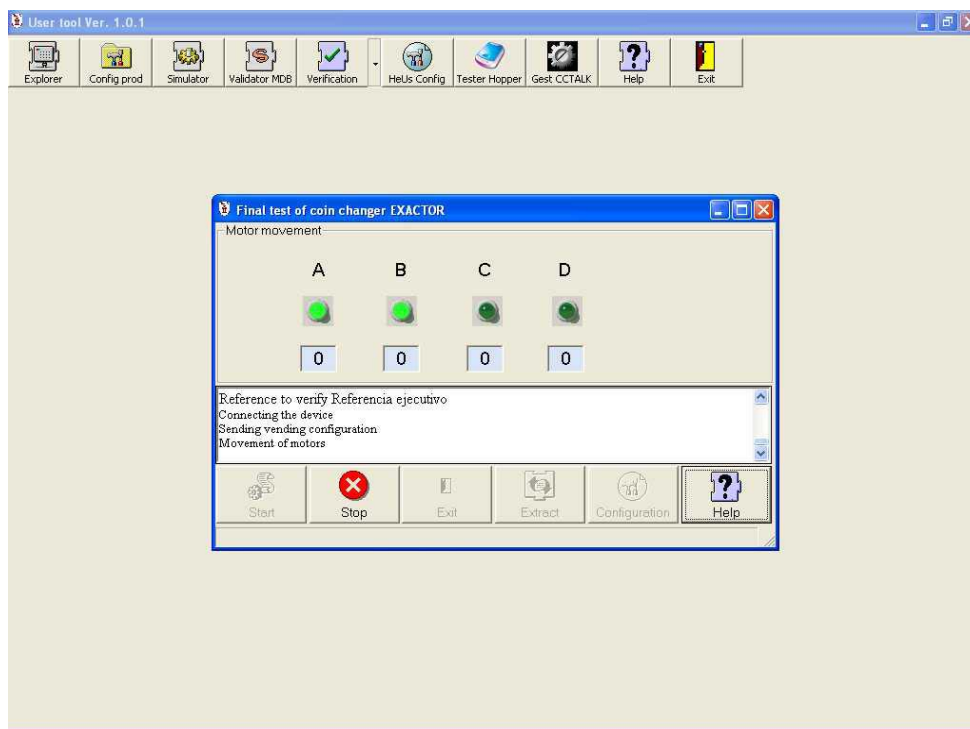
Test tune state

The following test consists of testing the state of the tubes, checking that their empty and full state sensors are not active. If they were, the corresponding lamp would light up red.



Test motor movement

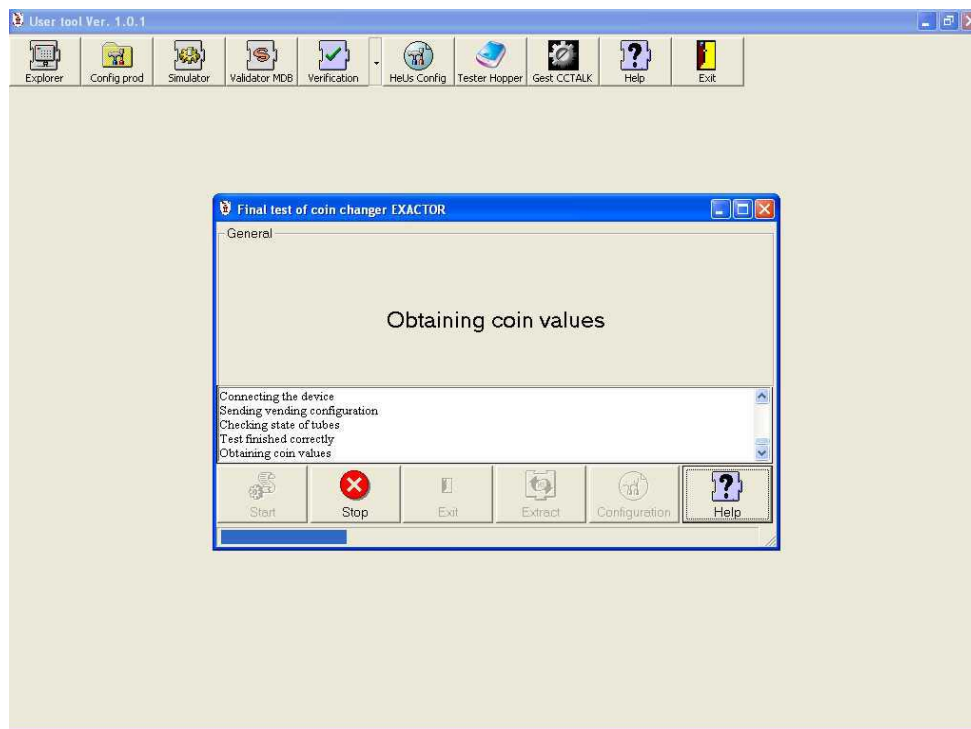
This motor test checks that the extractor module motors are available and they are making a full turn.



As the test is being done on each tube, the corresponding lamp will flash, lighting up green if it finished correctly or red if there is any problem.

Obtaining coin values

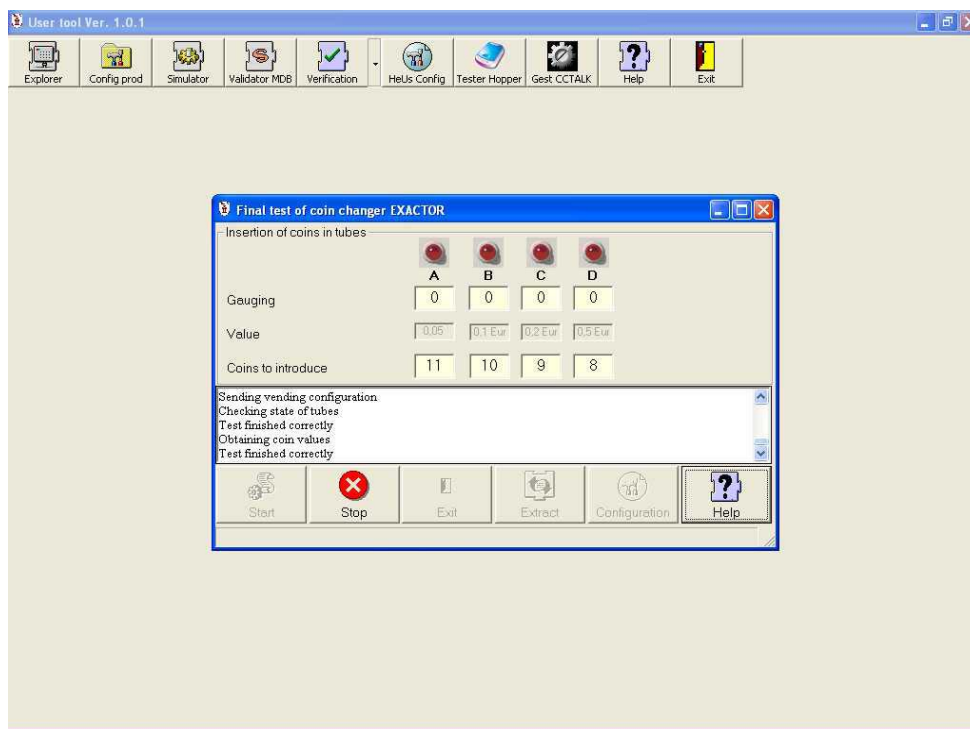
This is not really a test, but a phase where the User Tool requests the Coin changer for a report on the coin values programmed. This phase is carried out only if the test has been configured with “coins to tubes and cash box”.



This phase takes a few seconds. There will be a progress bar showing the progress of the operation.

Test of inserting coin in tubes

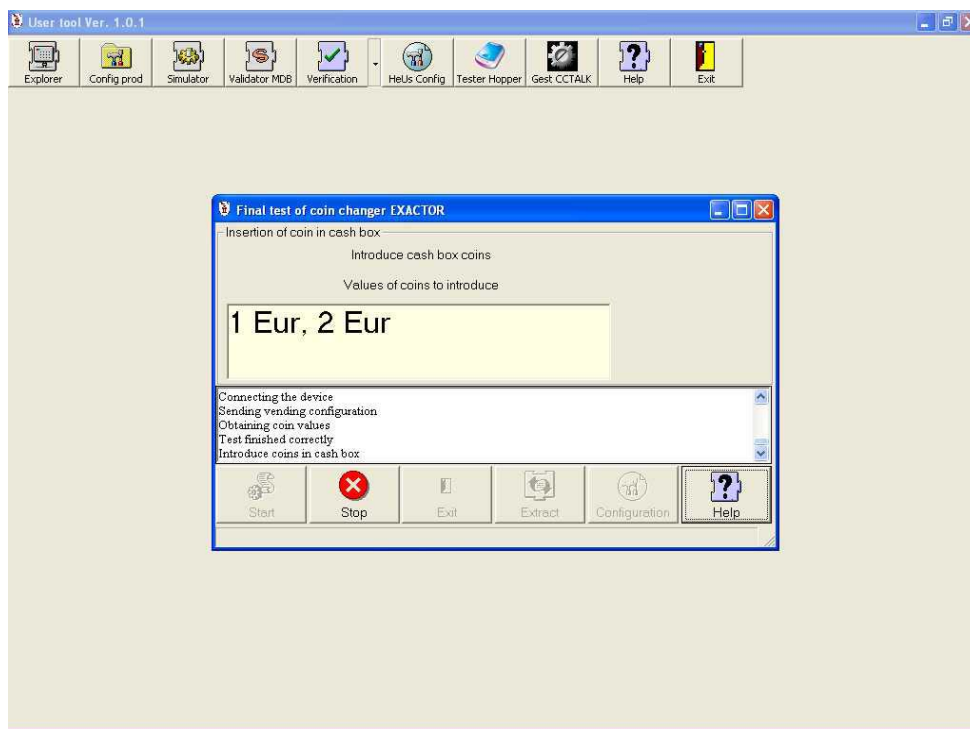
This test consists of testing the classification of coins, and also the sensors that indicate that the tubes have the minimum coins required. The User Tool will check that these sensors are not activated and then request the introduction of a certain number of coins for each tube. Once the required number of coins is reached, the User Tool will check that the minimum sensors are activated.



The figure shows the window that appears to request the introduction of coins. The number of coins to introduce is shown, their value and how many are presently in the tubes. When the correct number of coins is reached, the lamp will stop flashing and remain green.

Test cash box coins

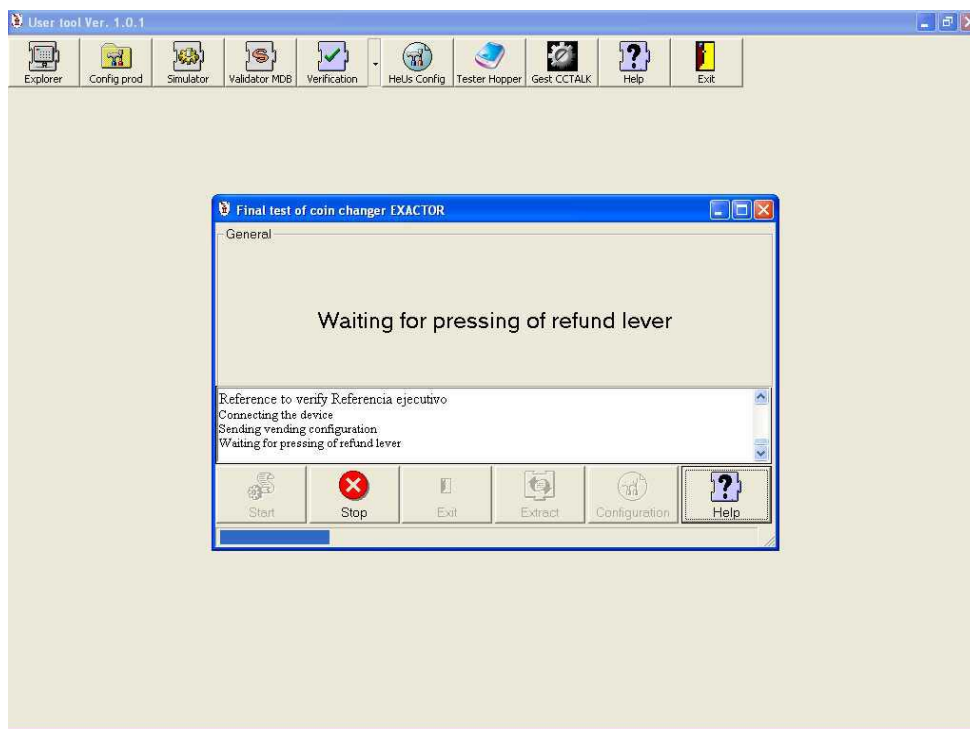
This test checks the classification of all the coins that are programmed in the changer to go to the cash box.



The figure shows the window that indicates which coins to introduce. They will disappear as they are introduced independently of the order they are introduced.

Test of the refund lever

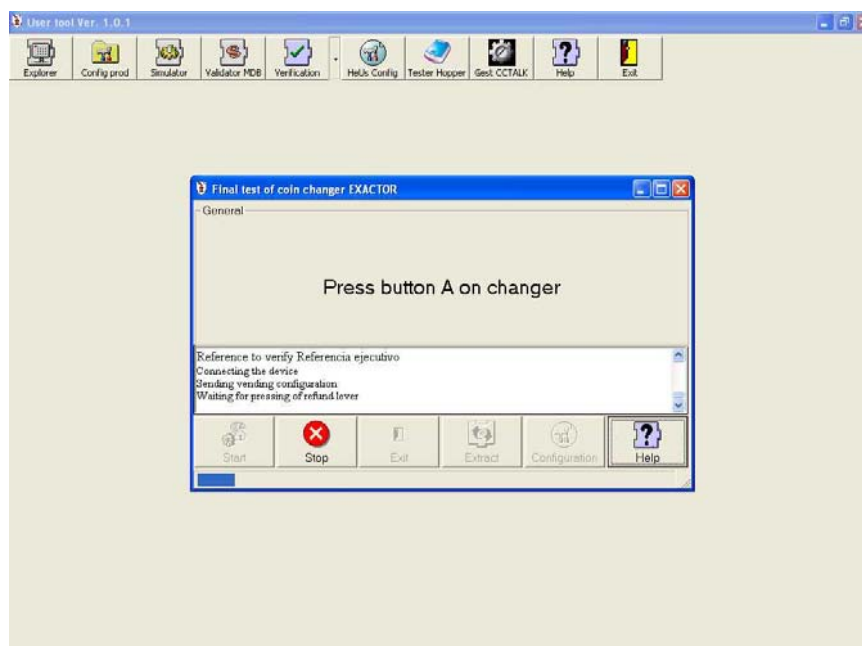
This test requires the user to press the refund lever to check it works correctly.



This test has limited time. The time is programmed in the configuration and the progress bar is shown in the status area.

Keyboard test

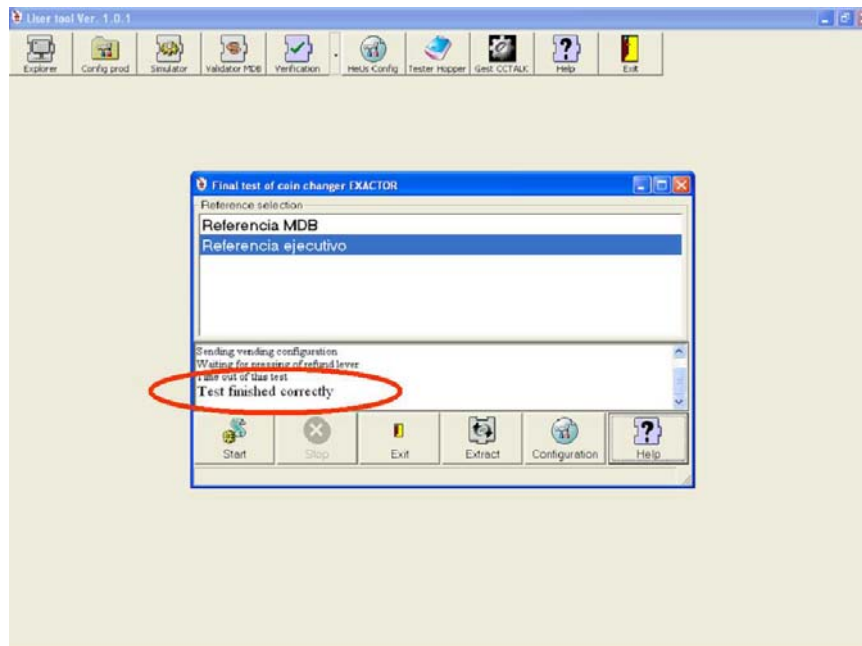
The User Tool requires the user to press each one of the buttons on the coin changer to check they work.



This test has limited time. The time is programmed in the configuration and the progress bar is shown in the status area.

End of test

If the user wishes to finish the test, they can do so at any time by pressing the "Stop" button. The User Tool will carry out a finish request, waiting for the current operation to finish and then cancelling all the remaining tests.



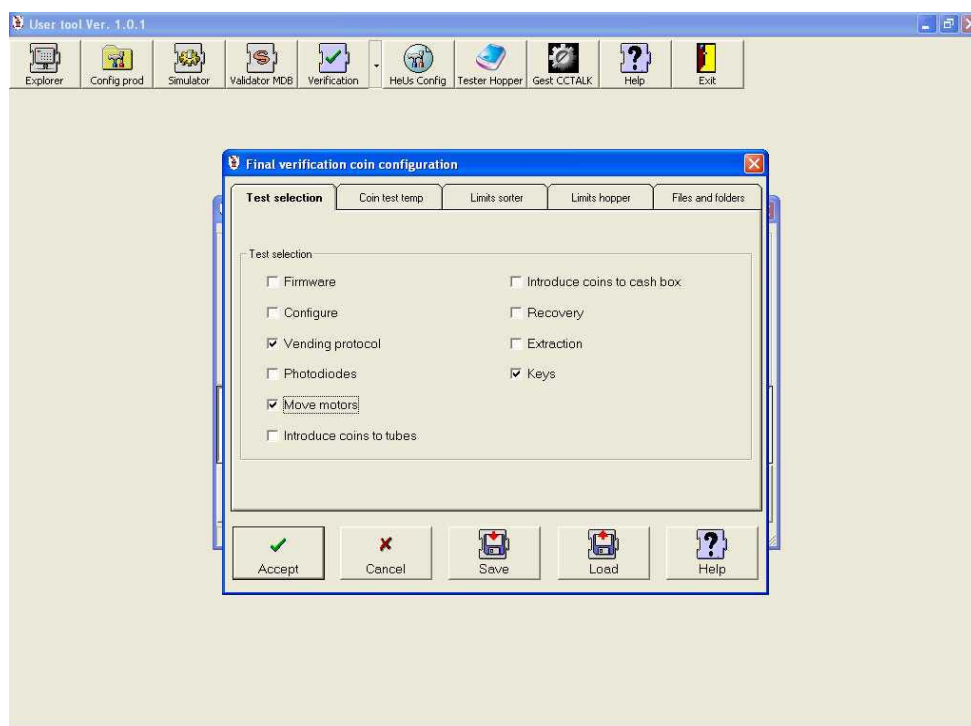
The message console will advise if the tests finished correctly or not, and if not, the cause of the error.

Configuration of the changer final test

The Changer final test window is separated into four tabs:

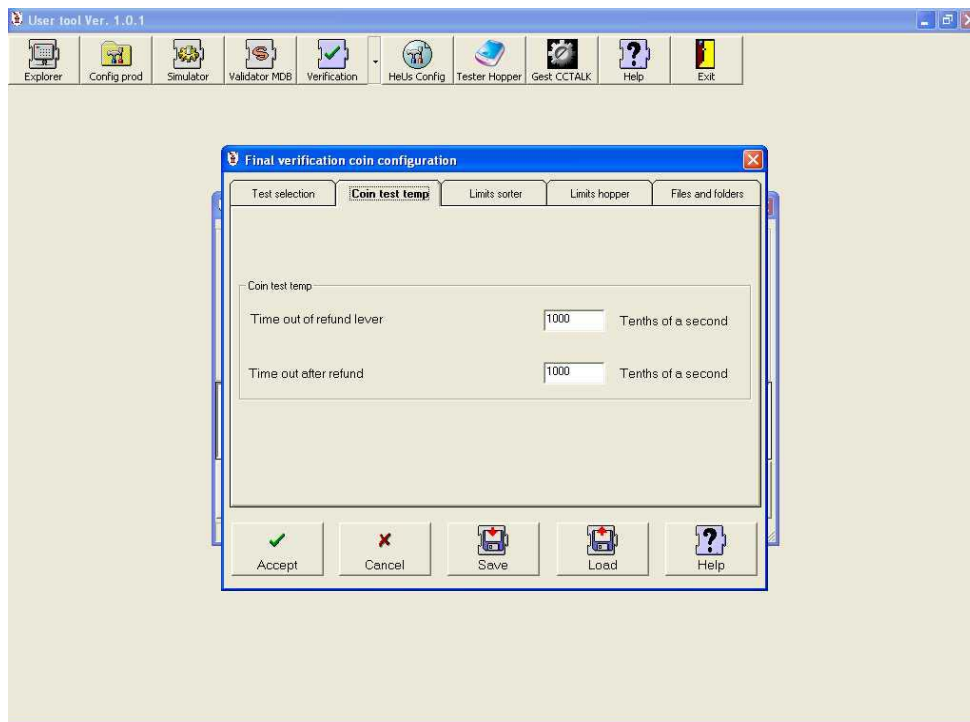
- **Test selection:** Allows the selection of the tests to do.
- **Timings:** Allows different timings to be assigned for use in the test.
- **Limits:** Allows the establishment of error limits in the photo cell measurements for the photo cell test.
- **Directories:** Allow the definition of the files to be used in the test.

Test selection



Allows the selection of the tests to do. If “Vending protocol” is selected, it is necessary to use a changer tester. If the tests “Introduction of coins in tubes” or “Introduction of coin in cash box” are not selected, it will not do the phase “Obtaining coin values”.

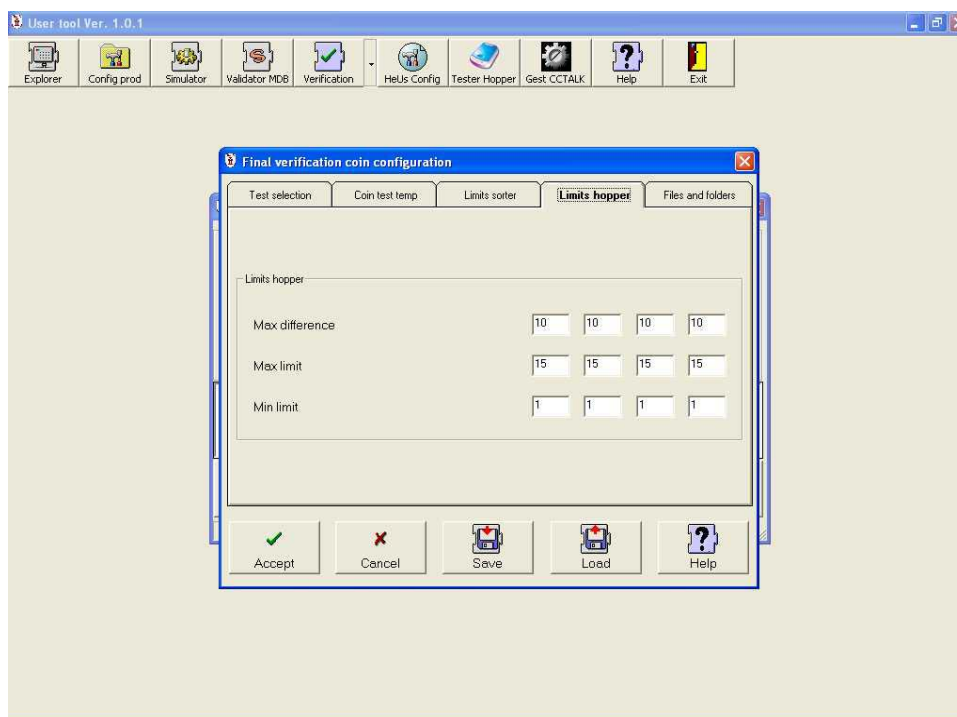
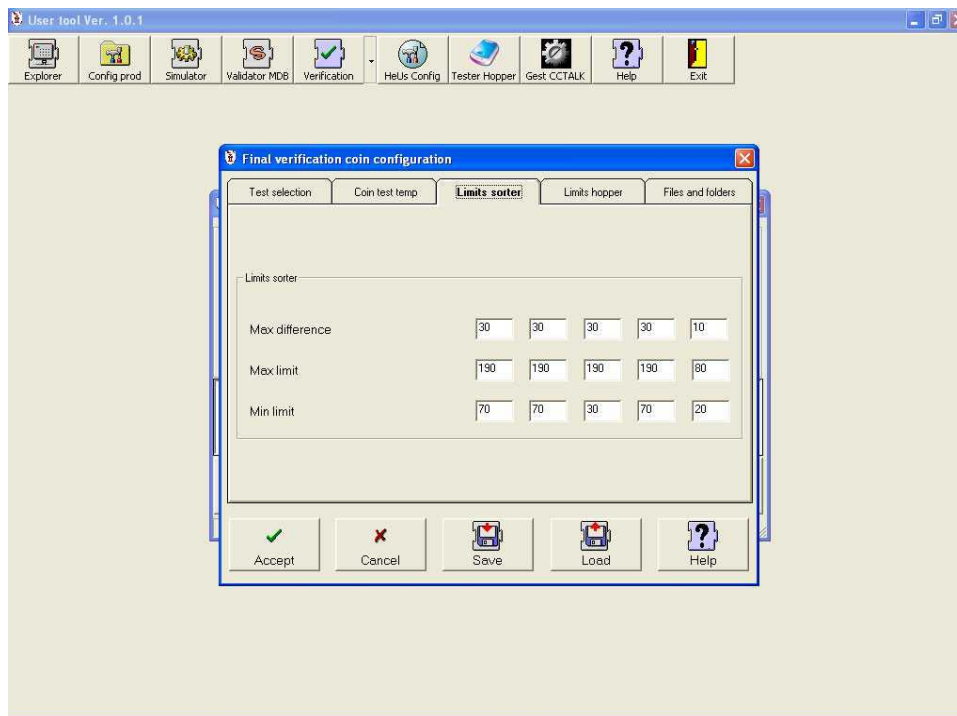
Timings



The following timings can be edited:

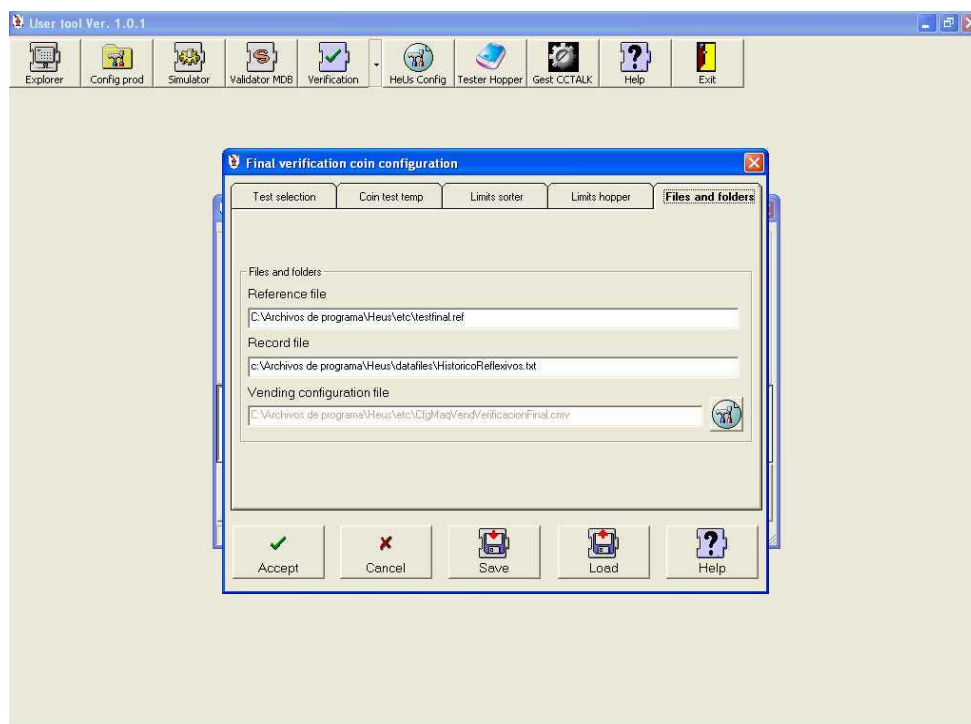
- **Waiting time for refund lever:** This is the waiting time for the refund lever to be pressed.
- **Waiting time after a refund:** This is the waiting time of the User Tool before finalising the refund test.

Limits



An error is produced in the photo cell test if the measurements obtained in the initial test differ marginally from those obtained in the final test. This window allows the editing of this margin.

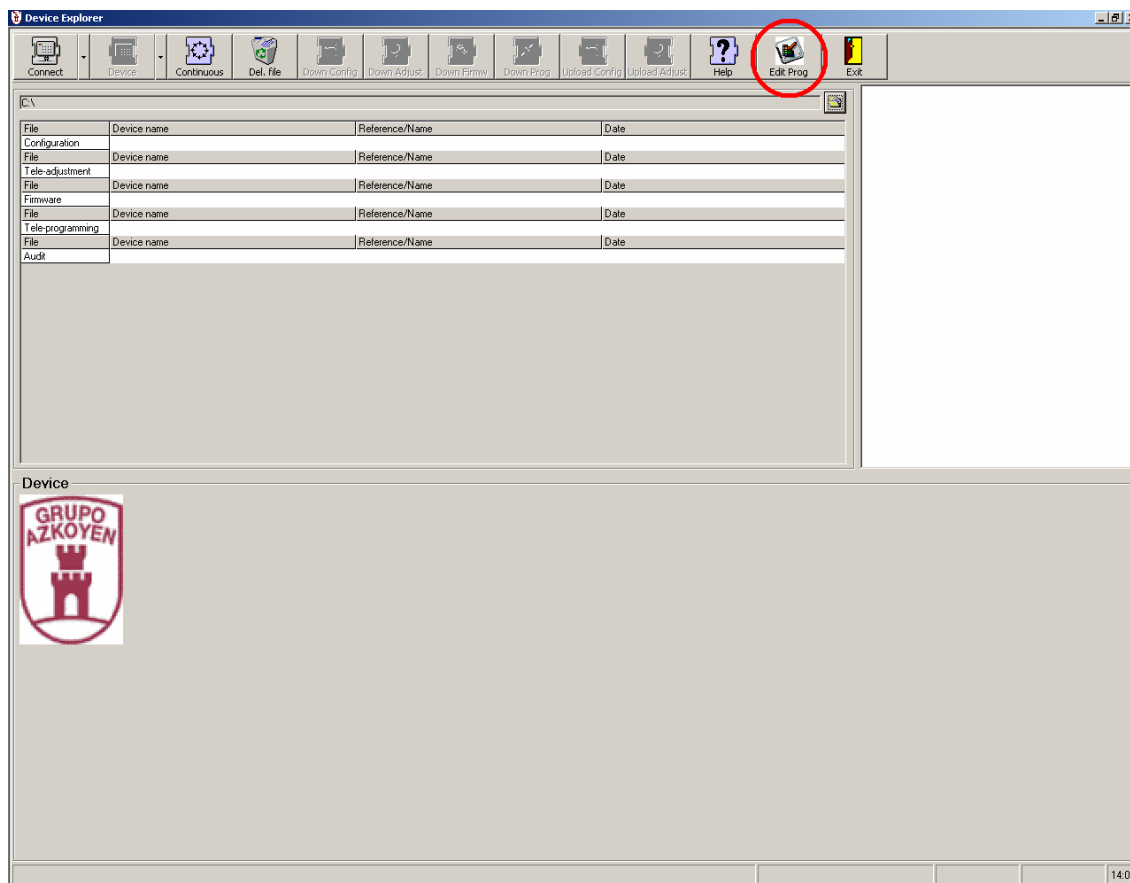
Directories and files



- **Reference files:** Indicates which file to use to show the list of references to select.
- **Photo cell record files:** Indicates the file where the values from the photo cell tests are written.
- **Vending configuration files:** To carry out a vending protocol test, the configuration of the vending machine to simulate is needed. The edition windows are identical to those in [Vending Machine Simulator](#).

Run DSP validator programmer

Click in **ProgSel** button:



It will run DSP validator programmer, whenever it has well defined its path in the window of configuration of HeUs (tab Accessory and Path control for ProgSel execution).

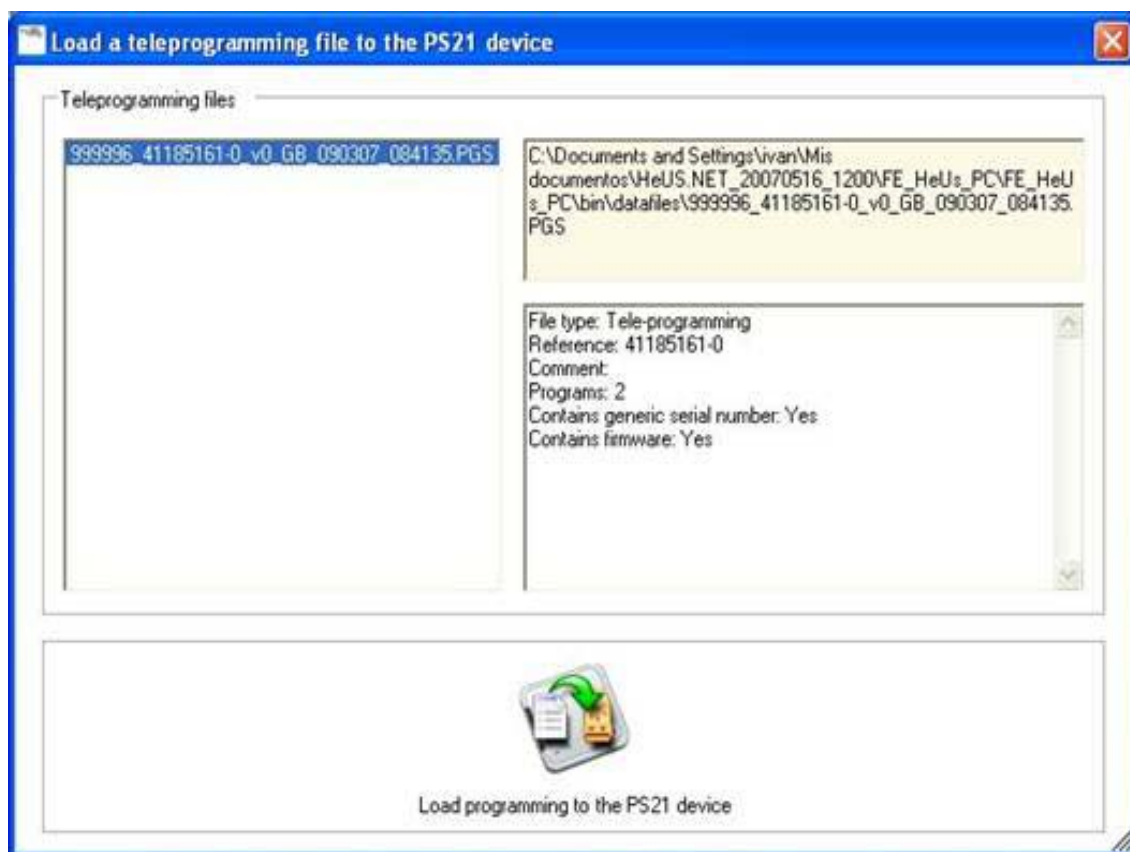
IMPORTANT NOTE: Any device manipulated with this application will lose its possible guarantee.

Main window of DSP validator user programmer

The first screen displayed does not contain all the options enabled; in order to make all the possibilities available, it is necessary for a programming to be loaded. The programmings can come from two sources:

- A programming file
- A device

The main screen is as follows:



Some functions can be accessed without loading a programming:

- Population processing
- Tests
- Status

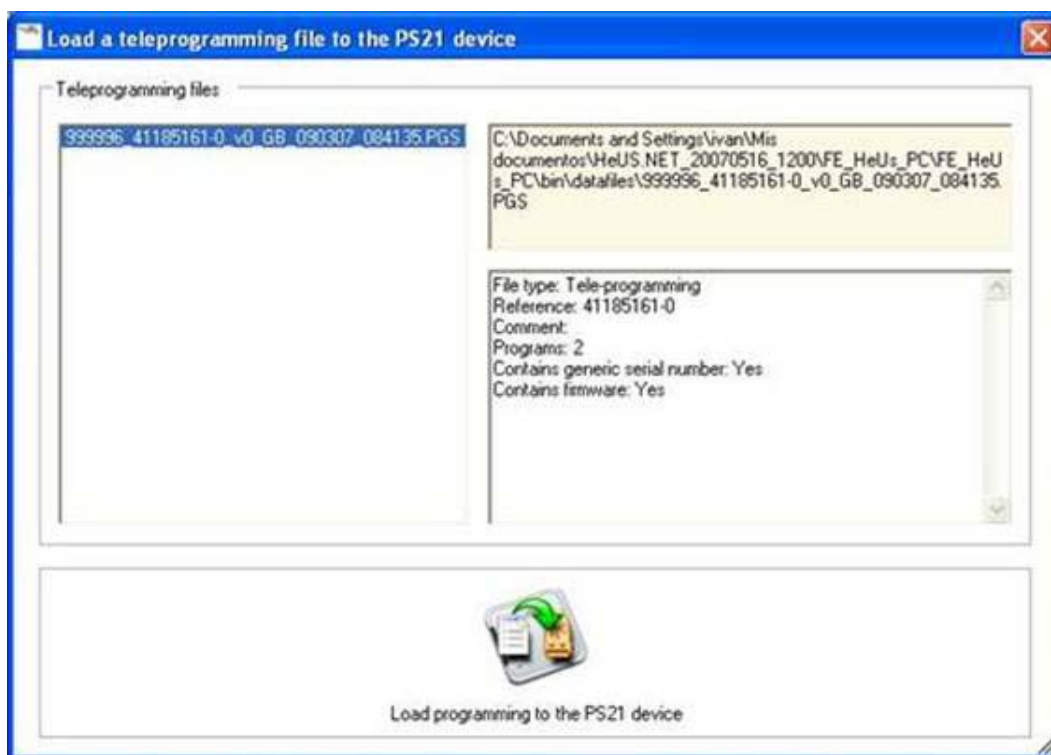
These functions are explained in detail in 3.6.3. We are now going to explain the steps to follow in order to load a programming and have access to all of the functions.

There are two controls to perform this operation:



Load Programming from File Button. Displays a dialogue with which to select a programming file to load to the PS21 device and perform a set of actions on the programming.

The following is an example of the file selection dialogue:



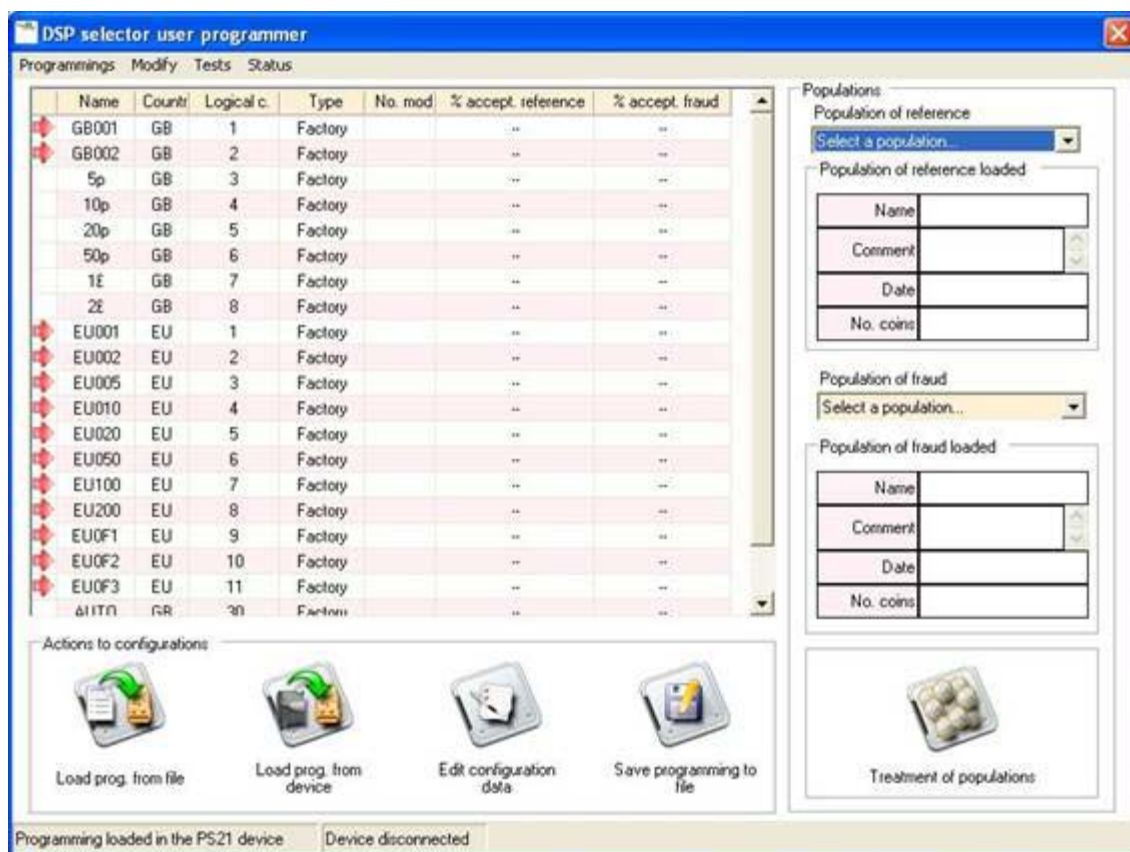
The access route to the file selected is shown in the top right-hand corner. Information on the file is displayed beneath the route to facilitate selection. The programming file selected is loaded by pressing the button at the bottom of the dialogue.



Load Programming from Device Button. By pressing this button, the device connected via the configured serial port is accessed directly. If it is not possible to connect with the device, then an error message is displayed. The purpose of this function is the same as the one described above, the only difference being the origin of the information.

Result of programming loaded in the pen drive

The figure below shows the result after loading a programming.



The panel at the top shows the characteristics of the programming loaded to the PS21 device. Due to the close relationship between the data in the sensor module settings and the configuration of the output module for each device, a red arrow is displayed when no country or coin name is found in the output module (see above).

Programmings menu

Save programming to a file

This option is used to save the programming to a file; if the file already exists, then you are asked if you want to overwrite it. This option is also available on the lower button bar of the User Programmer. The file name is needed in order to save the programming, although a reference and/or a comment can also be attached to the file. See the following example:



Save programming to file

File name
programación_fichero

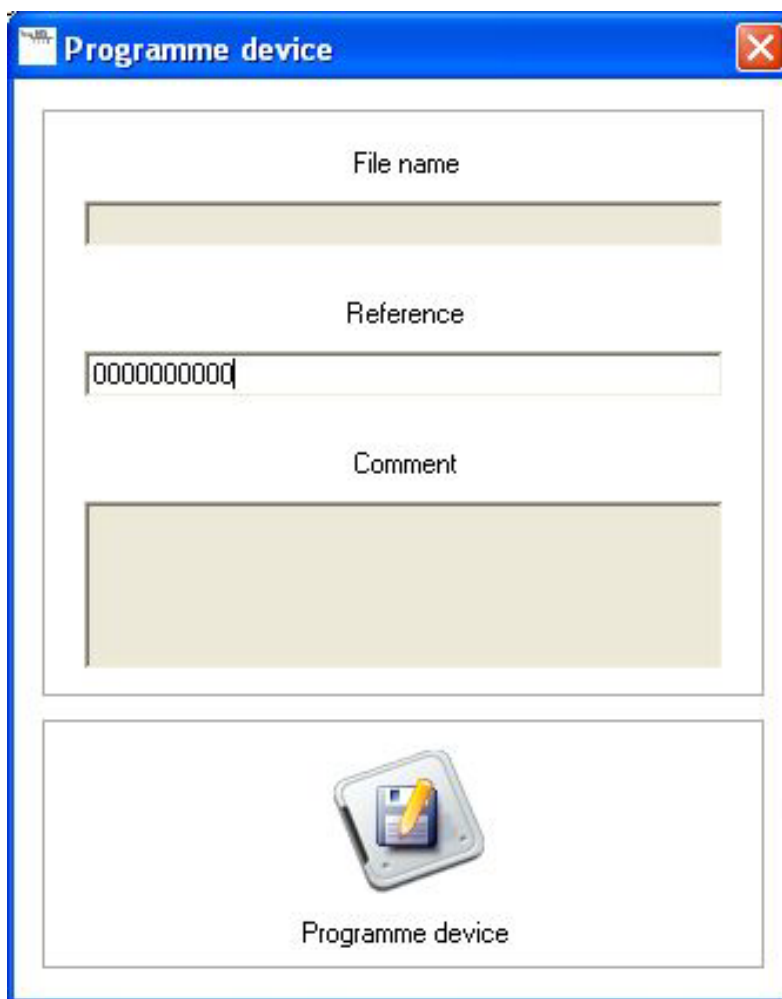
Reference
0000000000

Comment
example


Save programming

Programme device

This option is used to programme the device connected to the serial port with the programming currently loaded. As with the previous option, a reference and a comment can be attached to the programming before it is loaded to the device. The following is an example of the dialogue displayed:



The dialog box titled "Programme device" features a blue header bar with a close button. It contains three input fields: "File name" (empty), "Reference" (containing "0000000000"), and "Comment" (empty). Below these fields is a section with a floppy disk icon and the label "Programme device".

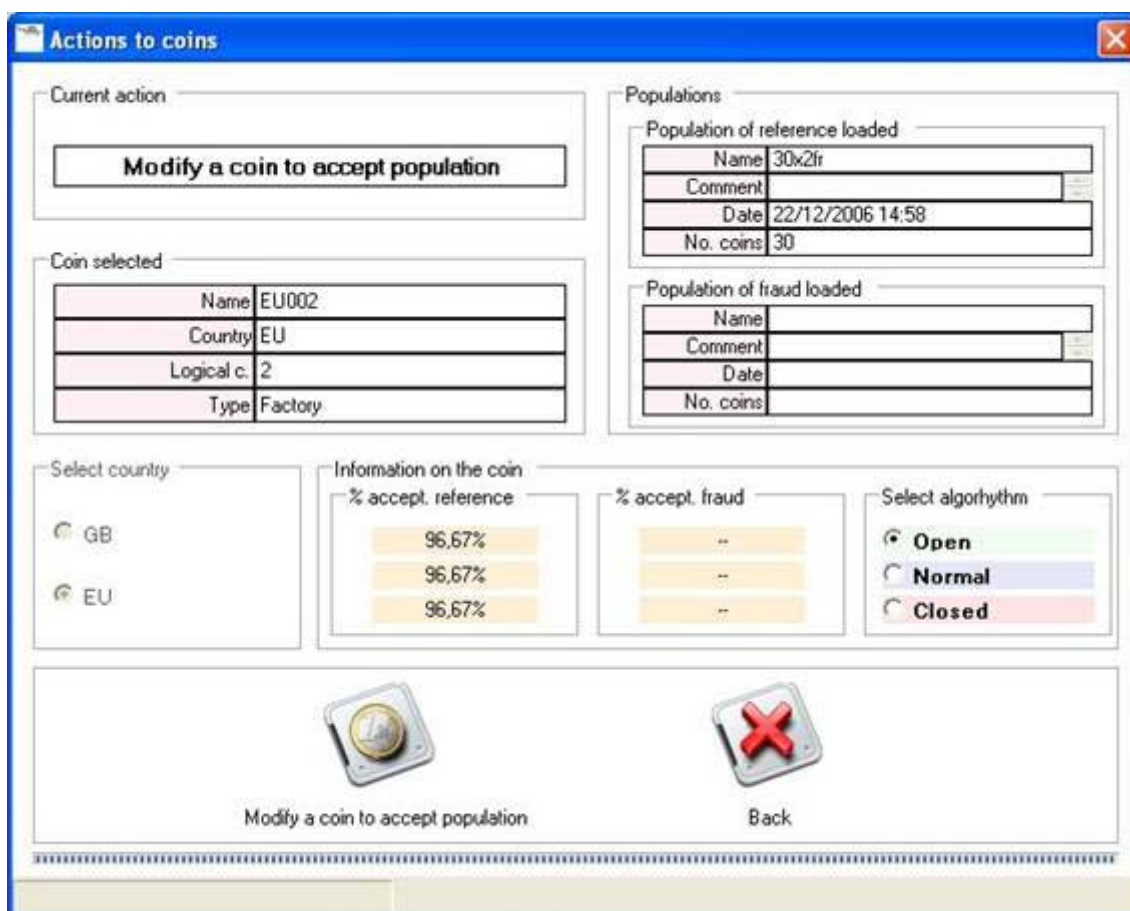
Exit

To close the ProgSel window and return to the main HeUs .NET window.

Modify menu

Add a coin

This option is used to add a coin to the current programming. To perform this operation, a new dialogue is displayed on which it is possible to select the options to create a new coin. The following is an example of the window:



Current action	
Modify a coin to accept population	

Coin selected	
Name	EU002
Country	EU
Logical c.	2
Type	Factory

Populations	
Population of reference loaded	
Name	30x2fr
Comment	
Date	22/12/2006 14:58
No. coins	30
Population of fraud loaded	
Name	
Comment	
Date	
No. coins	

Select country
☒ GB
☒ EU

Information on the coin	
% accept. reference	% accept. fraud
96.67%	--
96.67%	--
96.67%	--

Select algorithm
☒ Open
☐ Normal
☐ Closed



Modify a coin to accept populationBack

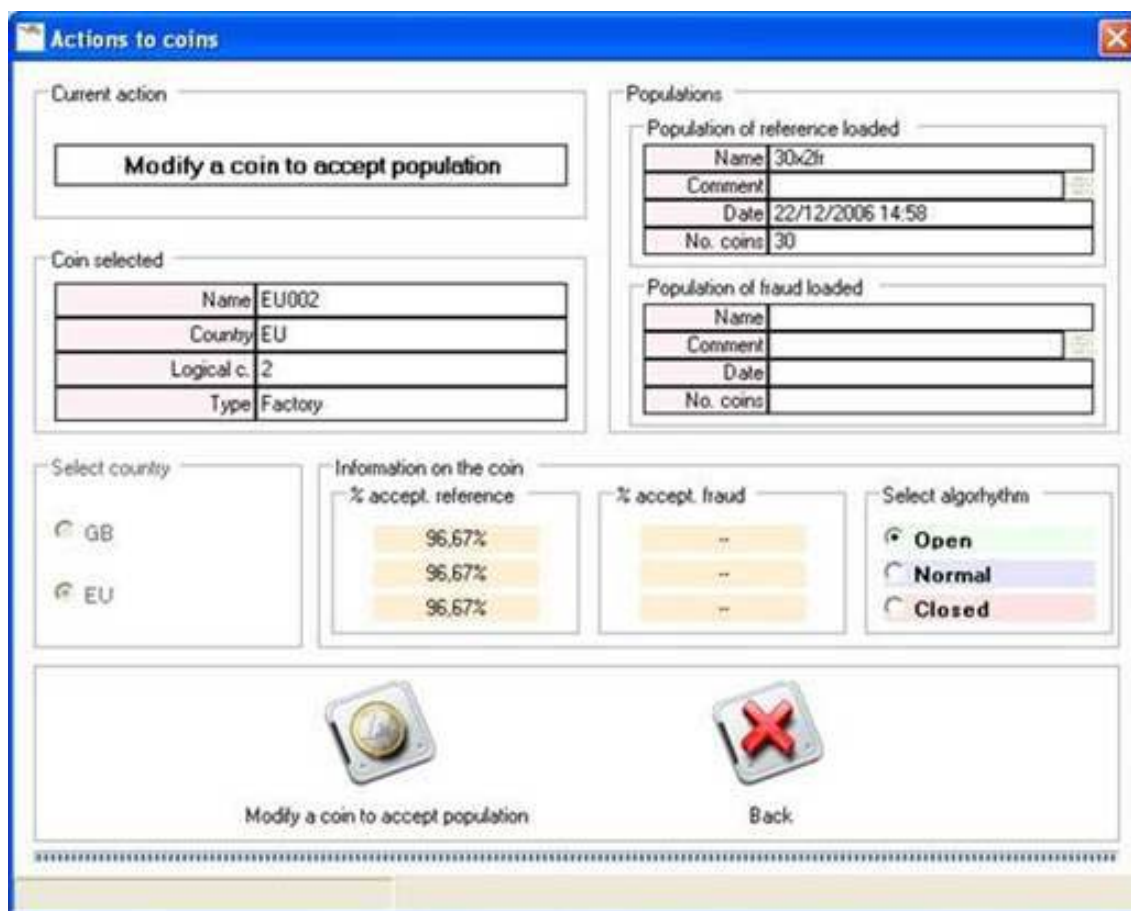
This window is divided up into several sections:

- **Current action:** shows the action being performed in this dialogue; in this case, add a coin.
- **Information on coin created:** shows information on the coin which will be created when the current operation is completed successfully.

- **Populations:** shows the data on the populations loaded in the PS21 device and which will affect the reference and fraud percentages of the new coin.
- **Selection of country:** to choose the country to which the new coin shall belong.
- **Results:** the algorithm must be chosen to find out the reference and fraud percentages to be assigned to the new coin.
- **Add a coin:** it is necessary to press this button to finish the operation and create a new coin.
- **Cancel:** to cancel the operation and return to the User Programmer screen.

Modify a coin to accept population

This option is used to modify the reference population assigned to the coin and its reference percentages. A coin must be selected in order to perform this operation. The following is an example of the screen:



The screenshot shows a software window titled "Actions to coins" with a blue title bar and a close button. The interface is divided into several sections:

- Current action:** A button labeled "Modify a coin to accept population".
- Coin selected:** A table showing coin details:

Name	EU002
Country	EU
Logical c.	2
Type	Factory
- Select country:** Two radio buttons, "GB" and "EU", with "EU" selected.
- Information on the coin:** Two columns of percentage values.

% accept. reference	% accept. fraud
96.67%	--
96.67%	--
96.67%	--
- Populations:** Two sections for loaded populations.

Population of reference loaded	
Name	30x2fr
Comment	
Date	22/12/2006 14:58
No. coins	30

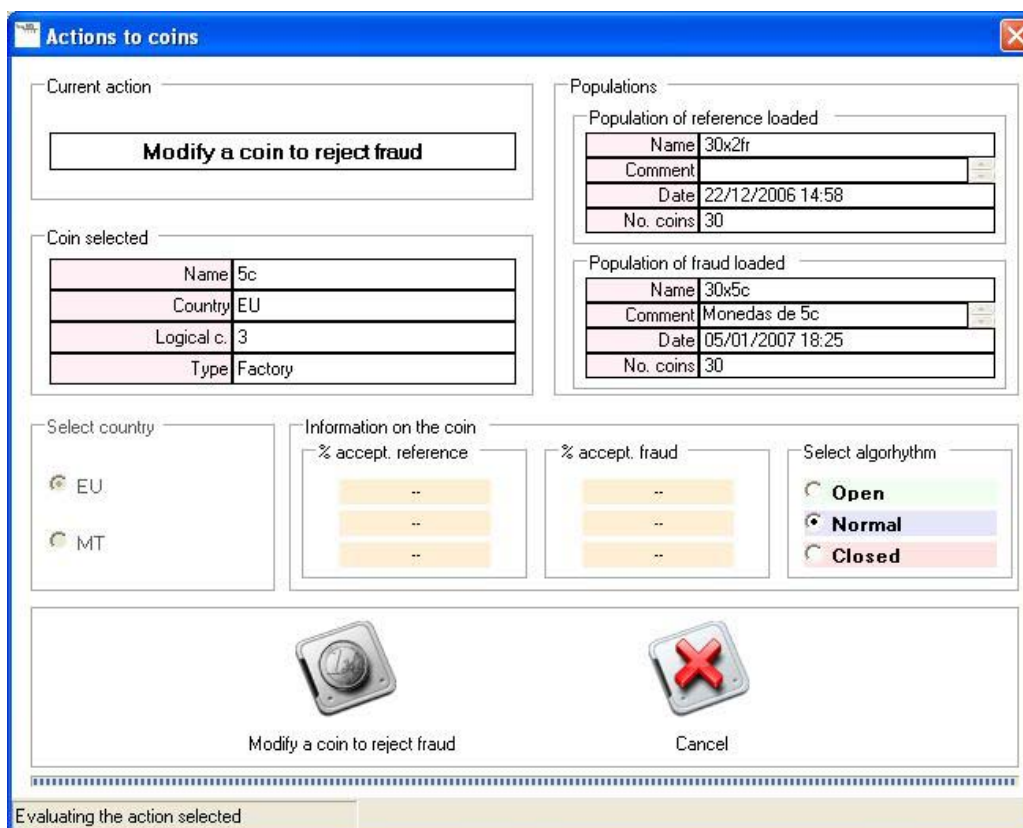
Population of fraud loaded	
Name	
Comment	
Date	
No. coins	
- Select algorithm:** Three radio buttons, "Open" (selected), "Normal", and "Closed".
- Bottom navigation:** Two large buttons with icons: a coin icon labeled "Modify a coin to accept population" and a red 'X' icon labeled "Back".

This window is divided up into several sections:

- **Current action:** shows the action being performed in this dialogue; in this case, modify a coin to accept a population.
- **Information on coin created:** shows information on the coin being modified.
- **Populations:** shows the data on the populations loaded in the PS21 device and which will affect the reference percentages of the coin being modified.
- **Selection of country:** the country cannot be modified because a coin which has already been created is being modified.
- **Results:** the algorithm must be chosen to find out the reference percentages to be assigned to the modified coin.
- **Modify a coin to accept population:** this button needs to be pressed to finish the operation and apply the changes to the coin.
- **Cancel:** to cancel the operation and return to the User Programmer screen.

Modify a coin to reject fraud

This option is used to modify the fraud population assigned to the coin and its fraud percentages. A coin must be selected in order to perform this operation. The following is an example of the window:



The screenshot shows the 'Actions to coins' window with the following sections:

- Current action:** A button labeled 'Modify a coin to reject fraud'.
- Coin selected:** A table showing coin details:

Name	5c
Country	EU
Logical c.	3
Type	Factory
- Select country:** Radio buttons for 'EU' (selected) and 'MT'.
- Information on the coin:** Two columns of percentage input fields:

% accept. reference	% accept. fraud
..	..
..	..
..	..
- Populations:** Two tables showing loaded populations:

Population of reference loaded	
Name	30x2fr
Comment	
Date	22/12/2006 14:58
No. coins	30

Population of fraud loaded	
Name	30x5c
Comment	Monedas de 5c
Date	05/01/2007 18:25
No. coins	30
- Select algorithm:** Radio buttons for 'Open', 'Normal' (selected), and 'Closed'.
- Buttons:** 'Modify a coin to reject fraud' (with a coin icon) and 'Cancel' (with a red X icon).
- Status bar:** 'Evaluating the action selected'.



This window is divided up into several sections:

- **Current action:** shows the action being performed in this dialogue; in this case, modify a coin to reject fraud.
- **Information on coin created:** shows information on the coin being modified.
- **Populations:** shows the data on the populations loaded in the PS21 device and which will affect the fraud percentages of the coin being modified.
- **Selection of country:** the country cannot be modified because a coin which has already been created is being modified.
- **Results:** the algorithm must be chosen to find out the fraud percentages to be assigned to the modified coin.
- **Modify a coin to reject fraud:** this button needs to be pressed to finish the operation and apply the changes to the coin.
- **Cancel:** to cancel the operation and return to the User Programmer screen.

Undo modifications to a coin

This option allows you to undo the modifications made to a coin; the last change made to the coin is undone. The number of modifications made to a coin is shown in the “No. mods.” column in the main User Programmer dialogue. Only changes made to coins created by the user or modified coins can be undone; changes to a factory coin cannot be undone. In the event of undoing the only modification made to a coin created by the user, the coin in question is deleted.

Delete a coin

This operation deletes a selected coin from the programming. Only coins created by the user can be deleted; if a coin modified by the user originates from a factory coin, then this coin returns to its original factory programming.

Return to the original factory programming

All of the coins return to the factory programming. This means that all of the modifications made to all of the coins are undone. The coins created by the user are deleted.

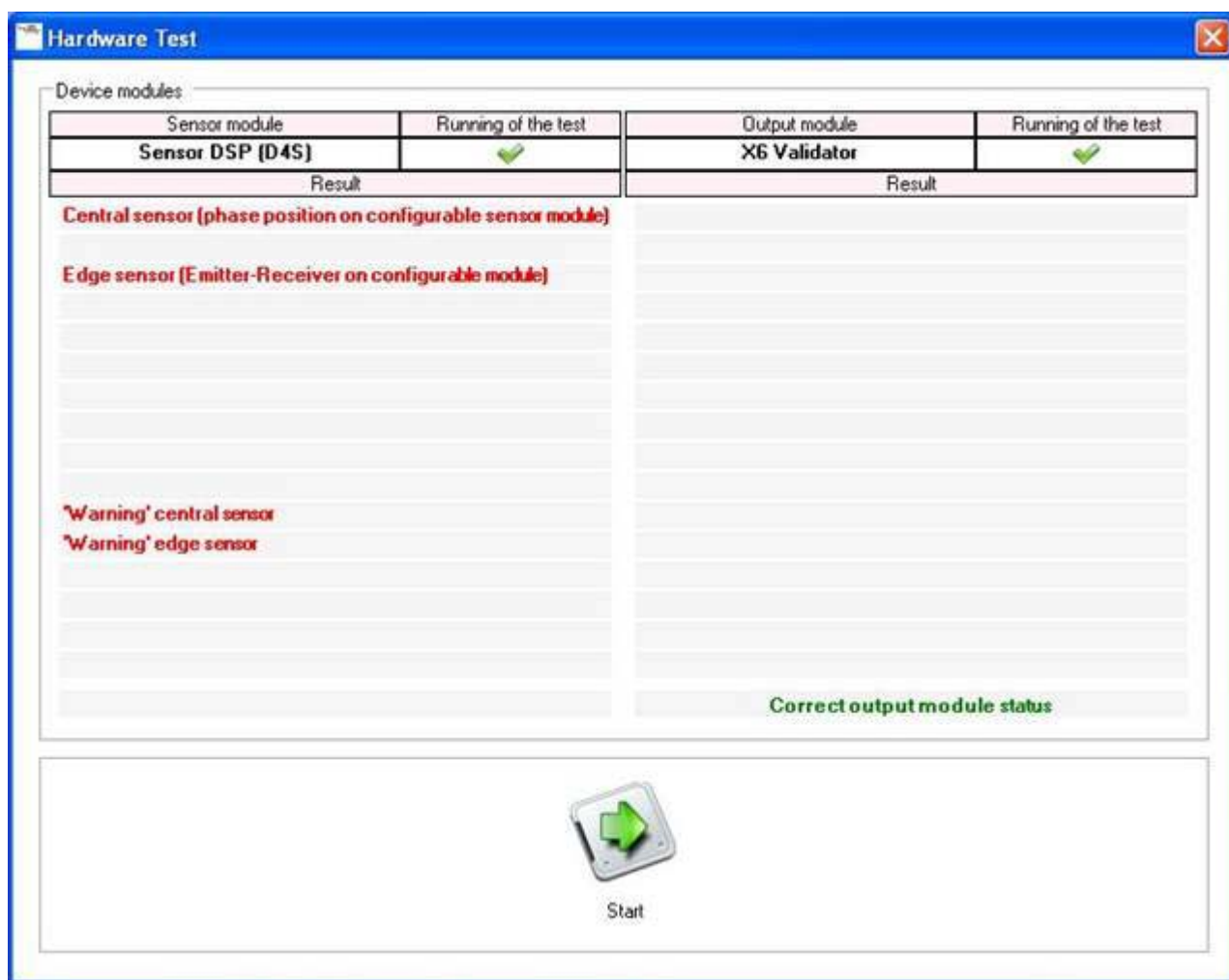
Edit configuration data

This option edits the configuration data of the output module which the programming belongs to. Due to the complexity of this option, it is described in detail in other chapter. This option is also available on the lower button bar.

Tests menu

Hardware test

This option displays a dialogue showing information on the status of the device connected via the serial port. This information is divided up into two blocks: one for the sensor module and the other for the output module.



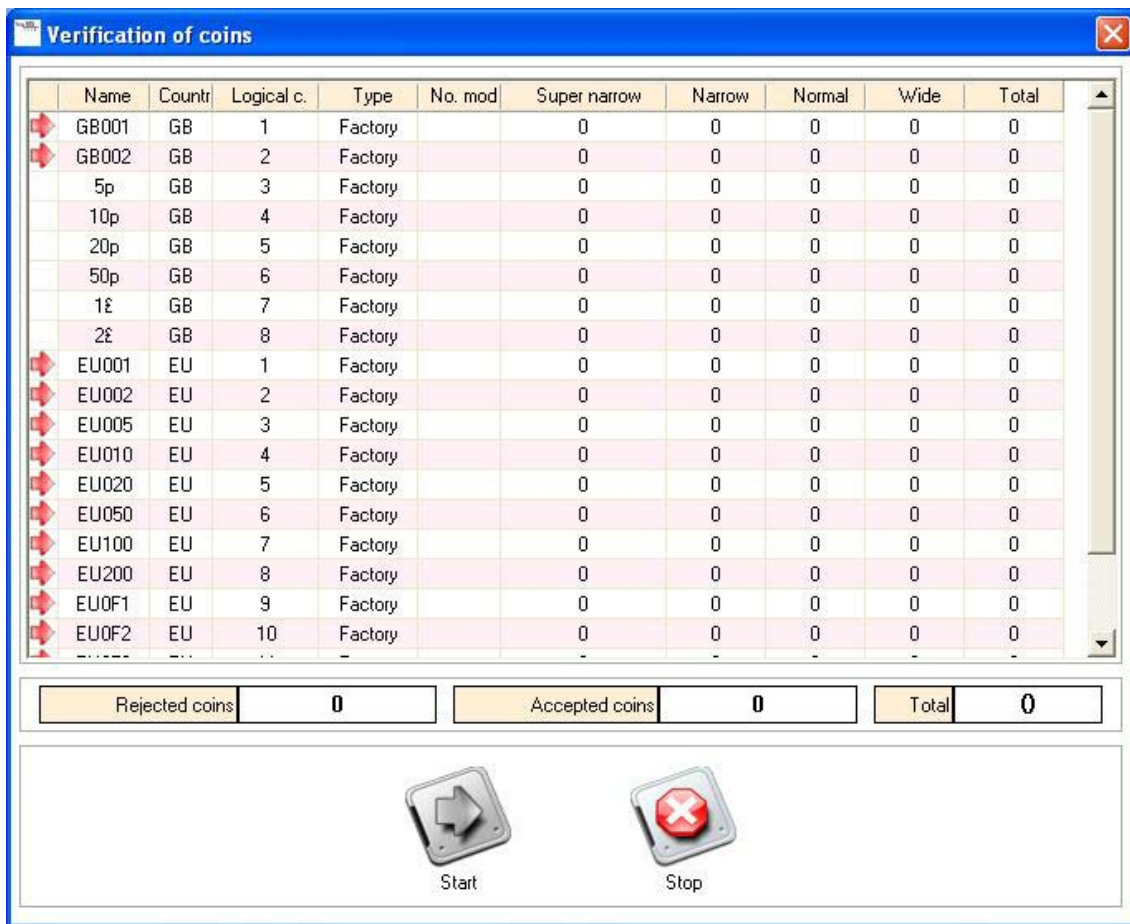
In order to perform a test, it is necessary to press the “Start” button at the bottom of the window. If the result is satisfactory, then the last line is displayed in green. If an error is detected, then the line relevant to the error is marked red.

Coin test

This dialogue shows information on the coins inserted in the device. A device needs to be connected to the application's serial port in order to perform this test.

It is necessary to press the “Start” button to begin the coin recognition process. Coins can then be inserted in the device connected for identification. When the user wants to finish the coin test, he/she should press the “Stop” button.

The following is an example of this test:



Name	Countr	Logical c.	Type	No. mod	Super narrow	Narrow	Normal	Wide	Total
GB001	GB	1	Factory		0	0	0	0	0
GB002	GB	2	Factory		0	0	0	0	0
5p	GB	3	Factory		0	0	0	0	0
10p	GB	4	Factory		0	0	0	0	0
20p	GB	5	Factory		0	0	0	0	0
50p	GB	6	Factory		0	0	0	0	0
1£	GB	7	Factory		0	0	0	0	0
2£	GB	8	Factory		0	0	0	0	0
EU001	EU	1	Factory		0	0	0	0	0
EU002	EU	2	Factory		0	0	0	0	0
EU005	EU	3	Factory		0	0	0	0	0
EU010	EU	4	Factory		0	0	0	0	0
EU020	EU	5	Factory		0	0	0	0	0
EU050	EU	6	Factory		0	0	0	0	0
EU100	EU	7	Factory		0	0	0	0	0
EU200	EU	8	Factory		0	0	0	0	0
EU0F1	EU	9	Factory		0	0	0	0	0
EU0F2	EU	10	Factory		0	0	0	0	0

Rejected coins

0

Accepted coins

0

Total

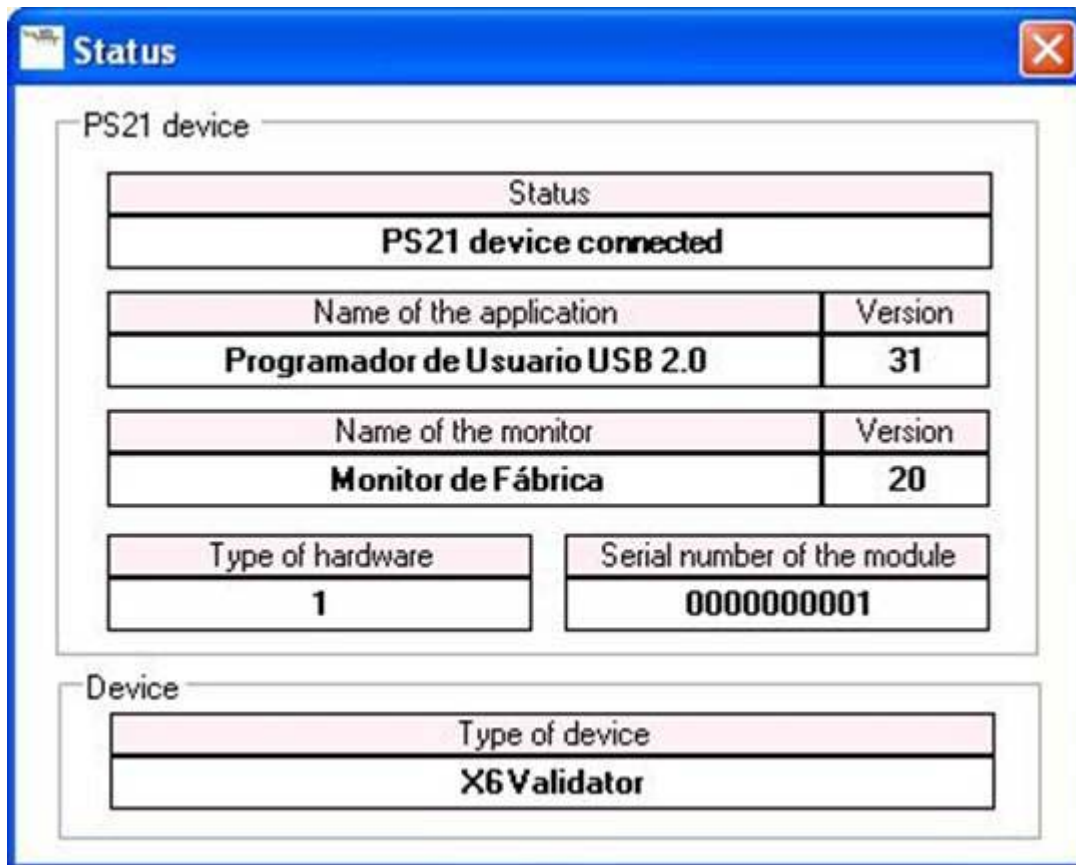
0

Start

Stop

Status menu

This dialogue displays information on the PS21 device. It also identifies the type of device connected to the serial port. The following figure provides more details:



The Status dialog box displays the following information:

Status	
PS21 device connected	

Name of the application	Version
Programador de Usuario USB 2.0	31

Name of the monitor	Version
Monitor de Fábrica	20

Type of hardware	Serial number of the module
1	0000000001

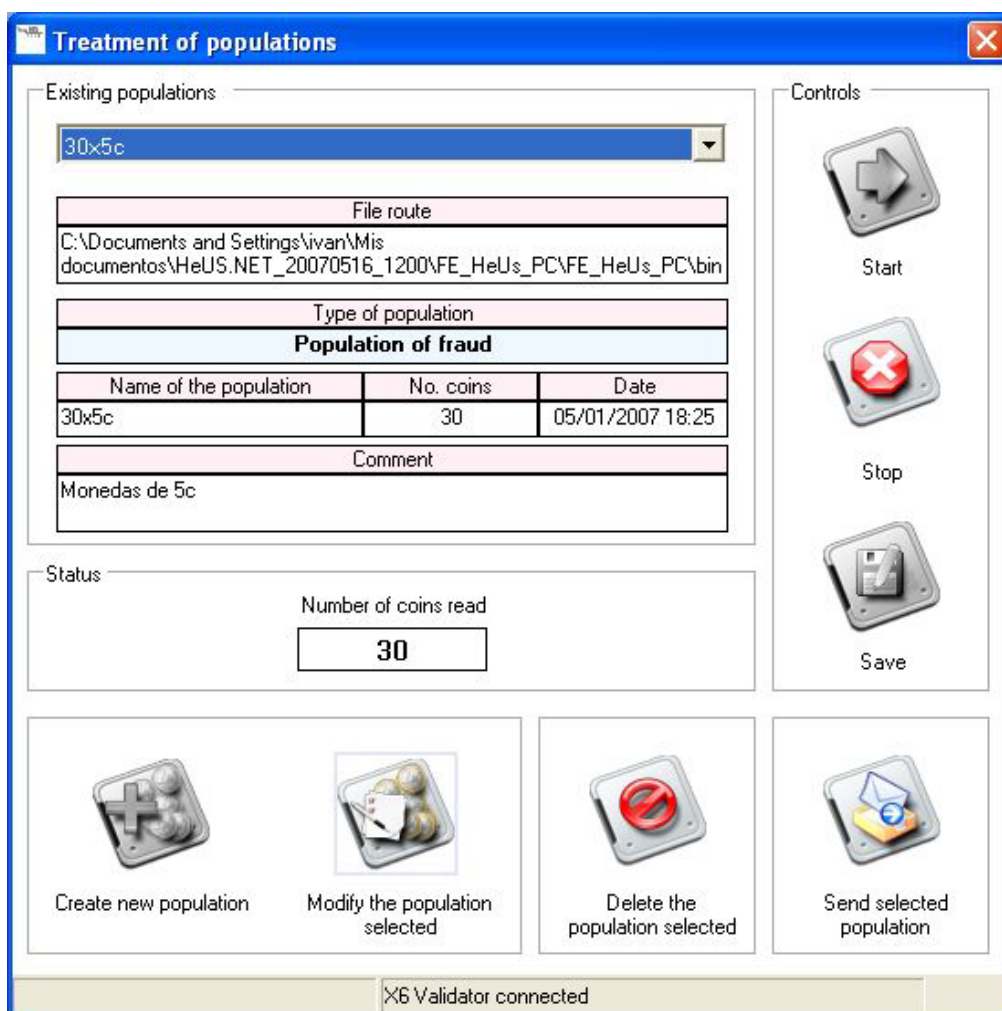
Device

Type of device
X6Validator

Populations menu

There are two selectable lists in the populations area on the main ProgSel screen. Each of these lists belongs to a population stored in the PS21 device; these populations affect the acceptance and fraud values of each coin to be created or modified. If the lists display the message “Select a population...”, then there is no population of this kind in the PS21. If a specific population is displayed, then all you need to do is select the option “Delete population from the PS21 device” to remove the population from the PS21.

Populations can be created, modified and deleted with the relevant button in the populations area. These buttons lead to a new window on which to perform these operations. The following is an example of this screen:



Treatment of populations

Existing populations

30x5c

File route

C:\Documents and Settings\ivan\Mis documentos\HeUS.NET_20070516_1200\FE_HeUs_PC\FE_HeUs_PC\bin

Type of population

Population of fraud

Name of the population	No. coins	Date
30x5c	30	05/01/2007 18:25

Comment

Monedas de 5c

Status

Number of coins read

30

Controls

Start

Stop

Save

Create new population

Modify the population selected

Delete the population selected

Send selected population

X6 Validator connected

A set of components are available in this dialogue:

- The area of existing populations: where one of the populations stored can be selected and information on it is shown. The data displayed is:
 - File route: establishes the route of the file from which the population originates.
 - Type of population: identifies the population as one of the two types possible.
 - Name of population: name used to refer to a population in the selectable lists.
 - No. coins: indicates the number of coins used to define the parameters of the population.
 - Date: shows the date of the last modification to the population.
 - Comments: comments written on saving the population.
- The status area: when creating or modifying a population, this area is only used to find out the number of coins which have been inserted in the device.
- The controls at the bottom of the window: these controls allow you to create, modify or delete a population. A set of coins must be inserted in the device connected to the serial port to create or modify a population. The information obtained from these coins allows the PS21 device to calculate the parameters of the population.



Create new population button: allows a new population to be created; the start button needs to be pressed to start the coin-reading process.



Modify the selected population button: a population needs to be selected in order to perform this action. Modifying a population involves inserting the greatest possible number of coins through the device so that the parameters generated by the PS21 device are as accurate as possible. Press the start button to begin reading.



Delete the selected population button: deletes the population selected.

- The control area: these controls are used in create / modify a population operations to start and stop the creation / modification of a population and save the result.



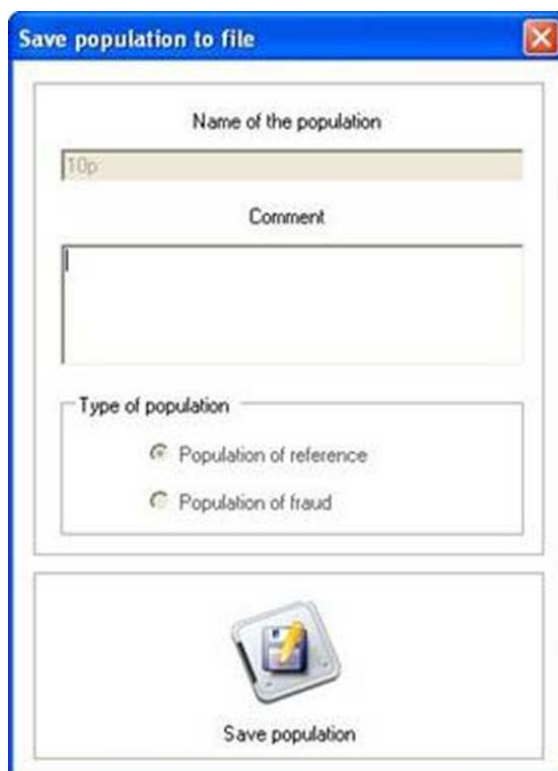
Start button: to start the coin-reading process via the device connected to the serial port.



Stop button: stops the identification of coins via the device; press the start button to restart the process.



Save button: to save the changes to the population, be it a new population or the modification of a previously selected population. When this button is pressed, a dialogue appears requesting certain data, name of population, comments and type of population; on a population being modified, only the comments option is available. The following is an example of this screen:



The screenshot shows a Windows-style dialog box titled "Save population to file". It contains the following fields and controls:

- Name of the population:** A text input field containing the value "10p".
- Comment:** A large, empty text area for entering comments.
- Type of population:** A group box containing two radio buttons:
 - ☒ Population of reference
 - ☐ Population of fraud
- Save population:** A button with a floppy disk icon, located at the bottom center of the dialog.

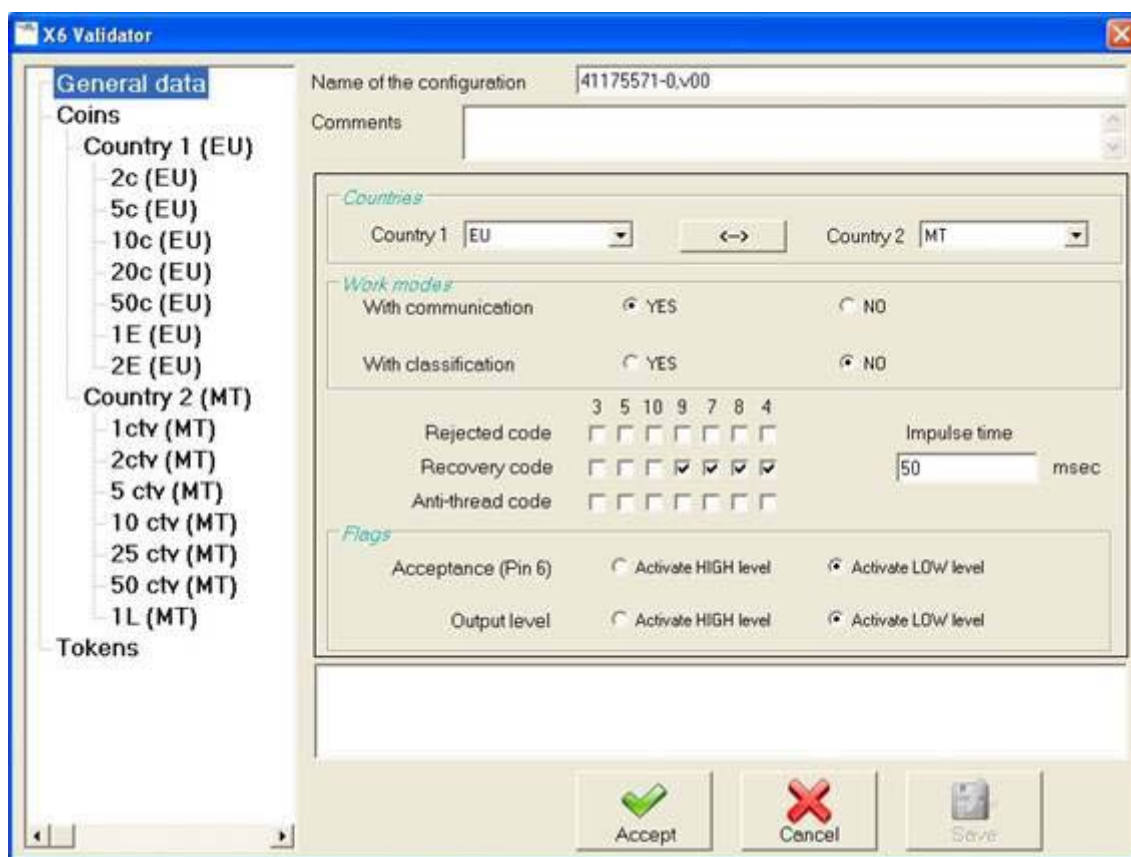
Edit Config

This section describes how the screens used to modify Ampasa device configurations work.

The edit a configuration option is available in two different areas of the application.

- From a configuration file, which can be edited by accessing the configuration files from the main HeUs .NET screen.
- When it is necessary to change the configuration of a programming file. This option is available on the DSP device User Programmer.

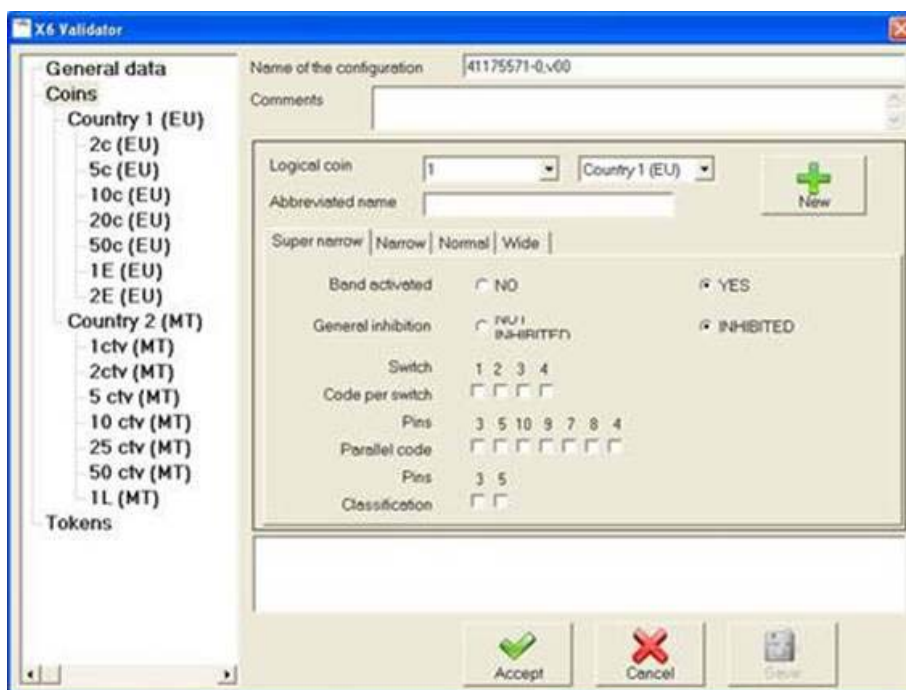
The configuration screen of the A6 validator is used by way of example



The screenshot shows the 'X6 Validator' configuration window. On the left, a tree view under 'General data' lists 'Coins' and 'Tokens'. The 'Coins' section is expanded, showing 'Country 1 (EU)' with options 2c, 5c, 10c, 20c, 50c, 1E, and 2E; and 'Country 2 (MT)' with options 1ctv, 2ctv, 5ctv, 10ctv, 25ctv, 50ctv, and 1L. The main area contains fields for 'Name of the configuration' (41175571-0.v00) and 'Comments'. Below these are sections for 'Countries' (Country 1: EU, Country 2: MT), 'Work modes' (With communication: YES, With classification: NO), 'Rejected code' (3, 5, 10, 9, 7, 8, 4), 'Recovery code' (3, 5, 10, 9, 7, 8, 4), 'Anti-thread code' (3, 5, 10, 9, 7, 8, 4), 'Impulse time' (50 msec), and 'Flags' (Acceptance (Pin 6): Activate LOW level, Output level: Activate LOW level). At the bottom are 'Accept', 'Cancel', and 'Save' buttons.

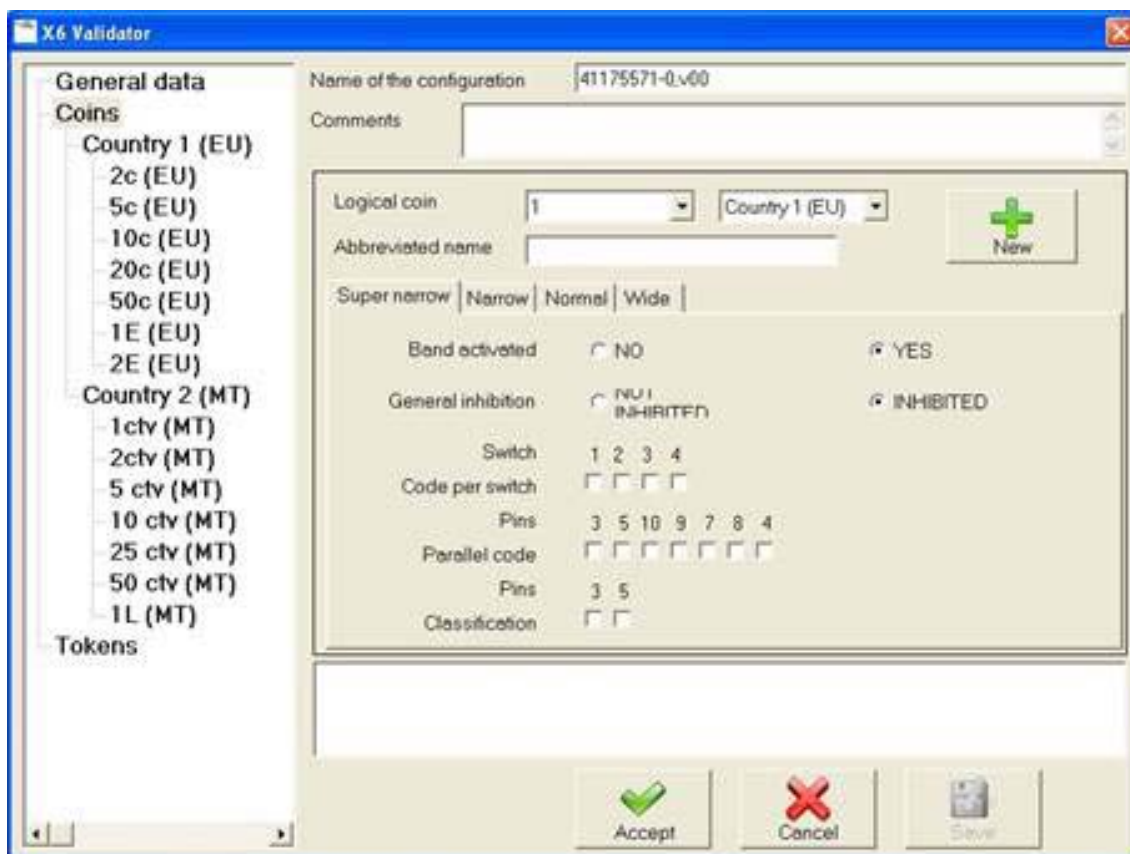
The screen shown is “General data”; this name may change depending on the type of validator. The control marked “Country area” is the only control specific to this screen. The other controls appear in each of the images shown as examples. The controls are:

- Name of configuration: this is the name which appears on the file selection lists. It cannot begin “411”.
- Comments: note to help identify or to inform as to specific details of the file.
- Country area: common to all of the validators. The number of details shown regarding the country may vary depending on the validator. This is used to select the countries which the coins are going to belong to. The button is used to interchange the position of the countries and coins assigned to it.
- File buttons: represent the options available to save the result. The result can be saved to the same file via the “Accept” button; the “Cancel” button can be used to cancel the modifications and not save the result; or the result can be saved to a file other than the original via the “Save” button. This last option may be disabled if the original file is a programming file.



This is the window for the creation of a new coin. The details of the coins may vary greatly on each type of validator. Two things need to be considered when creating a coin: the logical order and the country it is to be assigned to. The logical order indicates the order of the coin in the structure of the country. The controls common to all validators are:

- Logical coin: to select the logical position and the country the coin is going to belong to.
- New coin: when all of the conditions to create a new coin have been satisfied, the “New” button is activated. The conditions vary according to the validator, but normally involve assigning a specific value or activating a coin band.



This screen is identical to the previous one, the only difference residing in the fact that a specific coin already created is selected. This window is used to modify the coins. There are two restrictions: neither the country nor the logical order of the coin can be modified. The controls are:

- Logical coin: in this case, the logical coin only appears in order to inform as to its details. It cannot be modified.
- Delete coin: this button is used to delete a coin.